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COMPOSITION
OF
FOODS, WATERS, MINERALS,
MANURES
AND
Miscellaneous Substances
COMPILED BY
E. T. KENSINGTON, F. C. S.

CHEMICAL COMPOSITION

OF

FOODS, WATERS, SOILS, MINERALS,
MANURES & MISCELLANEOUS SUBSTANCES.

COMPILED BY

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P R E F A C E .

THE object of compiling this Manual is to furnish the public with a ready means of ascertaining the Chemical composition of the various Foods, Waters, Minerals, &c., &c., many of which they are continually brought in contact with in every day life. The Manual contains a large number of analyses, the results obtained by some of our most eminent scientific men, amongst whom may be named LIEBIG, DANA, URE, SIMEON, VOELCKER, HASSALL, ANDERSON, and a great many others whose especial attention have been directed to the several branches of Analytical Chemistry, of which these Analyses are the results.

. The compiling of the book has been the work of several years' research, the Analyses being collected from various Standard Works and Societies' Journals, nearly down to the present date, and as far as possible they have been arranged alphabetically under the various heads, so as to form a Book of Reference especially useful for persons who have not time to consult the various Works.

PREFACE.

For the information of those who are unacquainted with the meaning of various terms used by Chemists in expressing the composition of a substance, there is given an "Explanation of Terms," which will show more clearly the nature of the substances mentioned and their utility in the animal economy, especially with reference to the composition of Foods.

Most of the Analyses represent the proportion of each ingredient in every hundred parts and decimal parts thereof, but in the case of Waters the proportions are calculated per imperial gallon.

In a few instances there appear to be some errors in the Analysis, but the figures here given are correctly copied from the original Works.

EXPLANATION OF TERMS.

Albumen, or Albuminous Substances.—Contains Carbon, Hydrogen, Nitrogen, Oxygen and Sulphur, and builds up the tissues of the body; coagulates on heating. These substances occur in both the animal and vegetable kingdom.

Amyloid Substances, or Lardacein.—Contains Hydrogen, Nitrogen, Oxygen and Sulphur, and is found in certain diseases deposited in the liver.

Amidine, or Starch.—Consists of Carbon, Hydrogen and Oxygen, and is found more or less in all plants.

Casein.—Contains Carbon, Hydrogen, Oxygen, Nitrogen and Sulphur. It is the protein compound of milk, and forms the basis of cheese.

Chondrin.—Contains Carbon, Hydrogen, Oxygen, Nitrogen and Sulphur, but no Phosphorus. It is obtained from Cartilage of the ribs and joints. It is a kind of Gelatine.

Caffeine, or Theine.—The active principles of Coffee and Tea contains Carbon, Hydrogen, Nitrogen and Oxygen.

Carbo-hydrates.—Conduce to the production of Fat. They are such as Starch, Sugar, Gum, Lactin, Dextrin, &c., &c., and consist of Carbon, Hydrogen and Oxygen.

Cellulose, or Lignin.—This is a Carbo-hydrate, and constitutes the fundamental material of the structures of plants; forms a large portion of the solid parts of every vegetable.

Creatin.—Consists of Carbon, Hydrogen, Nitrogen, Oxygen and Water, and is obtained from the juice of raw flesh.

Creatinin.—Creatinin is obtained from the above.

Cholesterin.—Consists of Carbon, Hydrogen, Oxygen. It is found in Bile, Brains, Nerves and the Blood.

Chyle.—The fluid of the lacteal vessels.

EXPLANATION OF TERMS.

Dextrin, sometimes called British Gum.—It is obtained from Potato Starch by heating it to 400°.

Diastase.—A peculiar Nitrogenous substance which acts as a ferment on Starch, in Grain converting a portion into Sugar.

Fibrin.—Is composed of the Albuminous elements, with excess of Sulphur and Oxygen. It is found in the blood and Muscular Tissues.

Globulin.—Albuminoid matter existing in the fluid contents of Blood, Corpuscles, and in the Crystalline Lens of the Eye.

Glucose.—Consists of Carbon, Hydrogen and Oxygen. It is a Sugar found in Grapes and Honey. May be produced by the action of dilute acids on Starch.

Hydro-carbons, or Fats.—Consist of Stearin, Margaric and Olein. In the animal economy they form a store for force, producing material; assist in the production and retention of animal heat; promote digestion; but are insufficient to sustain animal life.

Hæmotoglobulin, or Hæmoglobin.—Contains Oxygen, Hydrogen, Iron, Nitrogen, Sulphur. It forms the chief part of the red globules of the Blood.

Hæmatin.—Occurs in the body as a product of decomposition of Hæmoglobin.

Inosite.—A variety of Glucose occurring in the muscular substance of the Heart and other organs of the animal body. It also occurs in Kidney Beans and the unripe fruit of *Phaseolus vulgaris* and other plants.

Inulin.—This substance differs from common Starch in important particulars. It is found in the roots of *Inula*, *Helenium*, *Dahlia* and *Helianthus tuberosus* and other plants.

Lupulin.—The bitter resinous principle of Hops.

Lactin, or Lactose.—A Carbo-hydrate commonly called Milk Sugar, being obtained from Whey.

Lignin.—See Cellulose.

Legumin, or Vegetable Casein.—Found in Peas, Beans, Almonds, &c.

EXPLANATION OF TERMS.

Mucin, or Mucus.—A substance related to the Proteids, and obtained from Ox-gall and the Salivary Glands.

Margarin.—A substance found extensively in animal and most vegetable fats. .

Myosin.—An Albuminous matter occurring in the contractile muscular substance that causes the rigor mortis.

Nitrogenous Principles.—Form structures that possess living properties, and are sub-divided into Albuminous or Protein and Gelatinous compounds.

Non-Nitrogenous Principles.—These form the source of power of structures which possess living properties. They consist of Carbon, Hydrogen and Oxygen. They are Starch, Gum, Sugar, Alcohol and Vegetable Acids.

Organic Principles.—Consist of only a small number of elements, chiefly Carbon, Hydrogen, Oxygen and Nitrogen, and generally speaking are distinguished by the facility with which they decompose under the influence of heat.

Olien.—A substance found in animal and vegetable Fats.

Protein Compounds.—*See Nitrogenous Compounds.*

Pectin.—The Jelly of Fruits.

Sarcosin.—A substance obtained from animal Flesh.

Syntonin.—Obtained from Muscle Fibre, and is an Acid Albumin.

Theine.—*See Caffeine.*

Theobromine.—The crystalizable principle obtained from the seeds of "Theobroma Cacao."

Vegeto-Alkalis.—A numerous class of bodies met with in various plants (and some of them in the animal organism). They contain a considerable quantity of Nitrogen, and in solution are very bitter to taste. Morphia, Narcotine and Quinine belong to this class.

INDEX.

	PAGE.		PAGE.
Apple... ..	1	Alum, Potass	172
Apples (appendix)	304	“ Stone	“
Applewood, Ash	249	“ Shales	173
Apple, Pumice, Ash	249	Alumina, Sulphate ..	“
“ Pumice... ..	133	Aluminous Sulphate of	
“ Ash of	1	Iron	172
“ Juice, Ash of	1	Actinolite	174
Asparagus, Ash of	2	Agalmatolite	“
Artichoke, Ash of	2	Augite	“
Artichoke	2	Andrewsite	“
Aluminoids	3	Apatite	175
Albumen	3	Alalite	176
Azotine	3	Amber	“
Apricots (appendix)	304	Anhydrite... ..	“
Ammonia, Sulphate	94	Andesine	“
“ Ulmate	“	Alunite	“
“ Carbonate ..	175	Amphibole	“
“ Chloride	“	Atacamite	177
Acorns	132	Ardennite... ..	“
“ Ash of	“	Agaricus Foetens	248
“ Decorticated	“	Annatto	249
Acacia Nilotica	133		
“ Ash of	248	Bacon (appendix)	301
Aërinite	169	Beef, Powder	3
Albite	“	“ Cooked	3
Allophane	“	Bread... ..	4
Almandine (Garnet)	“	Bee Bread... ..	4
Alcaline	170	Beechnuts, Ash of	4
Andalusite	170	Brocoli, leaves, Ash of	4
Apophyllite	170	“ heart, Ash of	5
Axinite	170	Butter, salt and fresh	5
Asbestos	170	Butterine	5
Alum, Soda	171	Barley	5
“ Ammonia	“	“ Ash of	6
“ Chinese	“	Bran	6
“ Earth	“	Beets	7
“ Residue... ..	172	Beetroot Tops, Ash of	257

	PAGE		PAGE
Beetroot, Ash of	7	Bournonite	179
“ Pulp	135	Bucklandite	“
Bilberry (appendix) ...	303	Buckolzite	“
“ Ash of	8	Boulangerite	“
Buckwheat, Ash of... ..	8	Bricks, Dinas	“
Beers, Sweet	8	Barilla	180
“ Bitter, France	8	Bitumen	“
“ Allsop's and Bass ...	8	Biotite	“
“ Place and Co.	9	Bustatnite... ..	“
“ German... ..	9	Balsams, Peru	250
“ Austrian	9	“ Styrax calamita ...	“
“ Ash of	10	“ Inferior Bombay ...	“
“ Stout	10	“ Opopalsam	251
Beans, Common, Ash of...	11	Benzoin	“
“ Windsor, Ash of... ..	11	Balsam, Canada	“
“ Kidney... ..	12	Balsam Copaiba	“
“ “ Ash of	12	Blood, Human... ..	252
“ French, Ash of	12	“ Arterial and venous ...	“
Bean Meal	12	“ Fish	253
Bones	94	“ Ashes of	“
“ Boiled	95	“ from Typhoid fever ...	254
“ Dust	95	“ “ Cholera	“
“ “ rotten	95	“ “ Dropsy	“
“ Shavings	95	“ “ Diabetes	“
“ Ash	96	“ “ Dog	“
“ Phosphates	96	“ “ Pneumonia	255
“ Black	96	“ “ Horses	“
Blackberry (appendix) ...	303	“ “ Cat, Goat,	“
Barley Straw	133	“ “ Sheep, &c.	256
Bancoul Nuts	134	Brain	257
“ “ Cake... ..	“	Bile	“
Beetroot Pulp, French ...	“	Bluebottle... ..	“
Bassia Nuts	135	Beechwood Bark, Ash of ...	259
“ “ Cake	“	“ Ash of	258
Beechnut Cake	136	Brass and Brass Wire ...	259
Brewer's Grains	“		
Bean Straw	“	Cockchafers (appendix) ...	301
“ Carob	137	Cheese, Gruyère, Ash of ...	13
Boracic acid	177	“ American	13
Baryta mica	178	“ Stilton	13
Blue, Egyptian	“	“ Wiltshire, &c., &c. ...	13
Beauxite	“	“ Ash of... ..	13
Bellmetal Ore	“	“ Cheddar, &c.	14
Beryl	179	“ Swedish	14

	PAGE.		PAGE
Cherry (appendix)	304	Coals, Welsh	183
“ Ash of... ..	14	“ Ash of	“
Cabbage, Winter, Ash of ...	15	“ Gas... ..	“
“ Boiled and natural ...	15	Charcoal	184
“ Leaves, Ash of	16	Chalks	“
Carrots	16	Chalkmarl... ..	“
Cauliflower, Ash of... ..	16	Chloralum... ..	185
Cucumber, Ash of	16	Chalkosiderite	“
Celery, Ash of	17	Calaité (Turquoise)... ..	“
Cayenne	17	Canaanite	186
Cocoa Nut, Ash of	17	Castor	“
“ Caked and flaked... ..	17	Cobalt	“
“ Cake	137-138	“ Speiss	187
“ Nibs	18	“ Smalt	“
“ Nut oil	18	Copper Ore	“
“ “ kernel	18	“ Scoria	“
“ Bean, Ash of	19	“ Black, &c.	188
Cider	19	Chabazite	“
Chicory Root	20	Chlorophyllite and Chlorite	189
“ “ roasted	20	Chondrodite	“
“ Ash of... ..	20	Chrysoberyl	“
Coffee, roasted... ..	21	Chrysolite... ..	“
“ raw	21	Clintonite	“
“ berry	21	Columbite... ..	190
“ a Cup of	22	Chronstedtite	“
“ Ash of	22	Chrysocolla	“
“ Infusion, Ash of... ..	22	Chyle... ..	259
Chestnut Kernel	23	Cartilage, Ash of	260
Currants (appendix)	303	Chamomile, Ash of... ..	“
Coprolites	97	Corncockle, Ash of	“
“	98	Chestnut (Horse), Ash of	“
“	99	Citrus Medica Seeds, Ash of	261
Cocanut Fibre refuse	137	Couch Grass, Ash of	“
China Oil Cake	138	Catechu	“
Castor Oil Cake	“	Cutch... ..	262
Cotton Seed Meal	139	Cochineal	“
“ “ Cake	“	Croton Oil Seed	“
Cabbage, Cattle	“	Cod Liver Oil	263
Clover Shells	140	Concretions	264
“ Ash of	141		
Candlenuts	142	Dates... ..	23
Comfrey	“	Dari Grain	142
Cements	181	Dipyre	191
Clays, Stourbridge, &c....	182	Dolomite	“

	PAGE.		PAGE
Datholite	191	Flesh—Cow and Oxen	26
Dysaluite	"	" various... ..	27—301
Danaite	"	" Ashes of	42
Dysclasite	"	Fæces... ..	105—106
Dichroite	192	Flax chaff... ..	143
Durangite	"	Fungi (appendix)	302
Digestibility of Foods ...	162	Francolite... ..	194
Dotter Seed	263	Feather Ore	"
Egg	23	Felspar	"
Endive, Ash of	24	Flourspar	195
Earthnut Cake... ..	143	Franklinite	"
Earthnut Husks	"	Fuller's Earth	"
Ecotite	192	Fusible Metal	"
Emerald	"	Fahlunite	"
Epsom Salts (crude) ...	193	Flag, Sweet, Ash of	266
Edelforsite	"	Flax, Ash of	"
Epidote	"	Foxglove Seed	"
Euchroite	"	Firwood, Ash of	267
Erinite	"	" Bark, Ash of	"
Eucrase	194	Ferns, Ash of	"
Erythrine	"	Gooseberries (appendix)... ..	303
Erubescite... ..	"	Gooseberry	27
Elder Bark, Ash of... ..	264	" Ash of	27
Ergot, Ash of	"	Greengages, Ash of... ..	27
Elmwood, Ash of	265	Grapes, Ash of... ..	28
Eparsette... ..	"	" Skin and Stones,	
Eyes	"	Ash of	28
Edible Earth	266	" Juice, Ash of	29
Fish—Carp, Trout	24	" Must, Ash of	29—271
" Oysters	25	Ginger	28
" Oysters (appendix)... ..	302	Gelatin	29
" Lobster	"	" Sugar	29
" Mussel	"	Guanos	107—118
" Salmon	"	Grass, Ash of	144
" White Fish	"	Gunpowder	195—196
" Eel	"	Glass, flint, strass, enamel	196
" Salmon Roe	24	" various	197
Foie Gras (appendix) ...	301	" " 	198—199
Food (Neave's)... ..	24	Glaze, Earthenware	199
Figs	25	Glauconite	"
Figs, Ash of	25	Garnet	"
Flesh—Horse and Porpoise	26	Gehlenite	200
		German Silver	"

	PAGE.		PAGE.
Gilbertite	200	Humbolatlite	202
Green Earth	"	Hornblende	"
Gümbelite... ..	"	Hair, Brown, Black, Red	
Galls	267	and Grey	272
" Alleppo	268	Hibiscus Esculentens ...	273
Glycerine	"	Hyoscyamus Niger, Ash of	"
Gum, Olibanum	"	Hemlock, Ash of	274
" Opoponax	"	Hazlenut, Ash of	"
" Sagapenum	269	" Bark, Ash of	"
" Gamboge	"	Heath, Ash of	"
" Myrrh	"		
" Ammoniacum	"	Iceland Moss	31
" Assafoedita	270	Isinglass	31
" Bdllium... ..	"	Ivory Dust	97
" Galbanum	"	Indigo Seed Cake	147
" Mezgnite... ..	"	Isenite	203
" Tragacanth	271	Iona Pebbles	"
" Arabic	"	Idocrase	"
" Butea	"	Isopyre	"
" Kino	"	Ilvaite	204
Gutta Percha	272	Iolite	"
Gluten, Ash of... ..	"	Iron Ore, chromic ...	204—206
Gastric Juice of Horse ...	"	Iron Stones, clay	206
		Iron, Scotch, Welsh, &c.	207—9
Honey,	30	" Steel... ..	209—10
Hops, and Lupulin of ...	30	" Slags... ..	210—11
" Ash of	30 and 273	" Rust	211
" Ash of entire plant ...	"	Ipecacuanha	275
Hempseed... ..	144		
Hempcake... ..	"	Jamesonite	211
Hempseed, Ash of	145	Jalap	275
Hay	"	Juniper Berries	276
" Ash of	"		
" Kidney Vetch	146	Koumis	31
" Clover	"	Kohl Rabi... ..	31
" Meadow, Ash of	147	Kaolin	212
Humite	201	Keilhanite... ..	"
Harmatone	"	Kianite	"
Hauyne	"	Kieserite	"
Halloylite	"	Kjerulfin	213
Herrerite	"	Kelp	"
Heulandite	202	Kobellite	"
Hudsonite	"		
Hypersthene	"	Lemon Seeds, Ash of ...	32

	PAGE.		PAGE.
Lettuce, Ash of	32	Milks, Whey	34
Liquorice Root... ..	32	“ Cream	35
Lime Juice	32	“ Skim	35
Lemon	33	“ Cow's	35
“ Juice	33	“ “ Ash of	35
Lard	33	“ Human	36
Leeks	33	“ “ Ash of	36
“ Ash of	34	“ Sow's	36
Liver, human	276	“ Asses' and Goat's	37
Liver, calves (appendix)... ..	301	“ Cocoa Nut	37
Lupines	147	“ “ Ash of	37
Locust Meal	148	Manna	37
Linseed	“	Mangols	37—150
“ Ash of	277	“ Pulp	150
“ Cakes	149	Maize	38
Lucerne	150	“ Ash of	38
Limestones	213—216	Millett “	38
Lithiophorite & Laumonite	216	Mustard, Mixed	39
Labradorite	“	“ Farina	39
Latrobeite	217	“ Black, Ash of... ..	39
Lapis Lazuli	“	“ White “	40
Lazulite	“	Mutton Soup	40
Lead, Carbonate	“	Meat, Extract	40
“ Chloride... ..	“	“ Fresh	40
“ Chromate Tungstate	218	“ Ash of fresh and salt	41
“ Molybdate Phosphate “	“	“ Pork, Ash of... ..	41
Lepidolite	“	“ Flour	41
Lepidmelane	“	“ Veal, Ash of	42
Leucite	219	Manure, Nightingale's Dung	99
Leucophane	“	“ Stable	100
Leucopyrite	“	“ “ Ash of	101
Lime, Borosilicate	“	“ “ “ 102—103	
“ Tungstate	“	“ Cow	103
Lievrte	“	“ Earth Closet	104
Liquor Amnii	276	“ Night Soil	“
Lymph	“	“ Gas Lime	118
Lucerne, Ash of	277	“ Salt Cake	129
Laurel Berries	“	“ Liquid	119
Lees	278	“ Superphosphate	119
Laurus Persea	“	“ “	306
“ “ pulp	“	“ Wheat	120
Milks, Condensed	34	“ Soot	129
“ Powder	34	“ British economical	120
		“ Meat fibre refuse	121

	PAGE.		PAGE.
Manure, meat powder refuse	151	Orange, Ash of...	44
“ Boiled Bones ...	121	Oil Bean Cake .	151
Melon, Cattle ...	150	Olive Cake ...	152
Manganese Spar ...	220	Oat, Straw ...	“
Marmolite ...	“	“ Husks ...	“
Martinsite ...	“	“ exclusive of husk ...	153
Magnesia ...	“	“ Grain ...	“
Malacolite ...	“	“ Meal ...	“
Malacone ...	“	“ Ash of straw ...	284
Meerschaum ...	221	“ Ash of grain ...	154
Monazite ...	“	Olivine ...	225
Monzonite ...	“	Oligoclase ...	“
Melaphyre ...	222	Opal ...	226
Mordenite ...	“	Ox Gall Stones...	281
Manganophyl ...	“	Ox Gall ...	282
Mica, Black ...	223	Oleander, Ash of ...	“
Meteorite ...	“	Oak, Ash of ...	“
Mesolite ...	“	“ Leaves and Sap ...	“
Mejonite ...	“	“ Wood and Bark ...	283
Meionite ...	“	“ Inner Bark ...	“
Man ...	279	Oxalis Crenata...	“
“ Mineral part ...	“	Orange Tree, Ash of ...	“
Moss, Ash of ...	“	“ “ “ ...	284
“ Dargarvel ...	280	Opium ...	284—285
Myall Wood ...	“		
Mistletoe, Ash of ...	“	Peaches (appendix)...	304
Madder root, Ash of ...	281	Pears, Fruit ...	44
Maize Stalk, Ash of ...	“	“ Ash of ...	44—45
		Plum (appendix) ...	304
Niger Seed and Cake	159—293	“ Ash of ...	45
Nutmeg ...	42	Pine Apple, Ash of...	45
Namaqualite ...	224	Peas, Ash of ...	46
Neogen ...	“	Pepper, White...	46
Nacrite ...	“	Parsnips ...	46
Natrolite ...	“	Potatoes ...	47
Nephrite, Jade...	225	“ refuse ...	154
Nemalite ...	“	“ Ash of ...	47
Nephline ...	“	Phosphates ...	122—128
Nasal Mucus ...	281	Potash Salts ...	128
		Porphyry ...	226
Onions ...	43	Pargasite ...	“
“ Stalk, Ash of ...	43	Parasite ...	“
“ Portugal, Ash of...	43	Pectolite ...	227
Orange, Fruit ...	44	Petalite ...	“

	PAGE.		PAGE.
Phenacite	227	Pus	291
Pinite... ..	"	Palm Nut meal	155
Plagionite	"	" shells and cake	"
Platin-iridium	"	Poppy Cake	"
Polabásite	228	Pea Shells	"
Pickeringite	"	Pea Straw	156
Pottery, Clays	"	Peas	300
" Kaolin	"	Quince Seed, Ash of	48
" Cornish stone clay	229	Raspberry (appendix)	303
" Black glaze	"	Rhubarb	48
" Roman red	"	" Ash of	48
" French, English	230	Radish, Ash of... ..	49
" English tender... ..	"	Rye straw	157
" Foreign	"	" grain and flour	49—292
" Glazed stoneware	231	" green	157
" Un glazed	"	" grass	158
" Common	"	Rice, raw and boiled	49
" Italo-Greek	"	" husks	"
" Campanian	232	" meal... ..	50
" Etruscan vase	"	" Ash of	50
" Sèvres	"	Rum, very old	50
Platinum ores	"	Rape, green	156
Pyrolusite	233	Rape cake... ..	156—157
Pollux	"	Rhodonite... ..	234
Praseolite	"	Ruby	"
Prenhite	"	Rutile... ..	"
Pyrope	"	Realgar	"
Pholerite	234	Ricinus Communis	291
Pinus Larix, Ash of	285	Resin, Elemi	"
" picea, "	286	" Shellac	"
Pine, Ash of	"	Rattany root	292
Pine Leaves, Ash of	"	Seakale	50
Populus nigra, "	"	Strawberries (appendix)... ..	303
Poplar Bark, "	287	" Ash of	51
Potato Tops, "	"	Spinach, Ash of	51
Pine Apple Top, "	"	Sugar cane	51
Pea Pods, Ash of	288	" China	52
Poppy, "	"	Sugar, sorghum sacchartum	52
Peat, "	"	" Tahiti and Ribbon	52
Pimento Berries	289	Sugars	53—54
Puff Balls, Ash of	290	Starch	54
" Giant	"	Soils	86—93
Pulmonary mucus	290		
Pancreatic fluid	"		

	PAGE.		PAGE.
Sesamé cake	158	Stubble wheat	161
Sorghum seed	"	Tea, black and green ...	54
Spurry seed	"	" infusion, Ash of ...	55
Sarradella seed... ..	159	" leaves, Ash of ...	55
Sunflower seed... ..	"	" seed, Ash of	55
" " Ash of	294	Turnips, Swede	56
Sesamum seed	159	" White	56
Saintfoin	160	" Ash of	56
Saponite	234	Tripe (appendix)	301
Saussarite	235	Tourmaline	240
Scapolite	"	Tufa	241
Schiller spar	"	Tungstate of lime	"
Staurotide	"	Tapiolite	"
Steatitic pseudomorphs ...	"	Talc	"
Stilbite	236	Tabular spar	"
Shale	"	Telluric silver	"
Schist, bituminous	"	Thomsonite	242
Sodalite	"	Triplite	"
Sphene	"	Tin	"
Spodumene	"	Topaz	"
Schroetterite	237	Tetrahedrite	"
Sillimanite	"	Tellurium	"
Serpentine... ..	"	Tobacco, fresh leaves ...	296
Sombrerite	"	" Ash of	"
Soda, nitrate of	128—237	Tillia Europea	297
Soda, phosphate	238	Thistle, Ash of	"
Sodium, black ash	"	Teeth... ..	"
" waste... ..	"	Urine... ..	130—131
" ash	239	"	166—168
Scoria... ..	"	Ultramarine	243
Spinel... ..	"	Uranite	"
Syngenite	"	Vinegar	56
Steatite	240	Vetch... ..	160
Saliva... ..	292	" Ash of	298
Sweat	292	Vivianite	243
Soaps	293	Vine, Ash of	298
Stramonium seed, Ash of ...	"	Wheat chaff	161
Saintfoin, Ash of	294	" straw	160
Sabine wood, Ash of	"	" " Ash of	161
Share grass, Ash of... ..	"	" grain	57
Sponge, Ash of... ..	295		
Silver Soap	"		
Scammony	"		
Seaweeds	163—166		

	PAGE.		PAGE.
Wheat embryos	298	Wagnerite... ..	244
“ flour	57	Wollastonite	245
“ bran	“	Warwickite	“
“ Ash of	58		
Walnut kernel, Ash of ...	59	Yeast, from Beer	299
“ shell	298	“ compressed	161
Wines	59—71	“ Ash of	299
Waters	71—85	Yenite	245
Wavellite	243	Yettrocrite	“
Weissite	“		
Wichtine	244	Zirconia	245
Witherite	“	Zennerite	“
Wolfram	“	Zeolite	246
Woehlerite	“	Zinc ores	247

FOODS.

APPLE, Ash of Fruit.

Potash	35·68
Soda	26·09
Lime	4·08
Magnesia	8·75
Sulphuric acid	6·09
Silicic acid	4·32
Phosphoric acid	12·34
Phosphate of sesquioxide of iron	2·65

APPLE.

Water	86·28
Sugar	6·45
Ligneous matter	3·80
Gum	3·17
Malic acid	·11
Albumen	·08
Chlorophyl	·08
Lime	·08

100·00

APPLE JUICE, Ash of.

Potash	35·68
Soda	26·09
Lime	4·08
Magnesia	8·75
Sulphuric acid	6·09
Silicic acid	4·32
Phosphoric	12·34
Phosphate of iron	2·65

100·00

B

ASPARAGUS, Ash of.

Potash	6.01
Soda	34.21
Magnesia	3.03
Lime	4.39
Phosphoric acid	18.51
Sulphuric acid	4.13
Silica	13.47
Phosphate of iron	3.31
Chloride of sodium	12.94

ARTICHOKE, Jerusalem.

Grape sugar... ..	14.800
Inuline	3.000
Gum	1.220
Albumen	.900
Fat... ..	.090
Citrate of potash	1.070
Phosphate of potash	.060
Sulphate of potash	.120
Phosphate of lime	.140
Citrate of lime	.080
Chloride of potassium	.080
Malate of potash	.030
Tartarate of lime	.015
Woody fibre	1.220
Silica	.025
Water	77.150

100.000
ARTICHOKE, Jerusalem, Ash of.

Carbonic acid	11.0
Sulphuric acid	2.2
Phosphoric acid	10.8
Chlorine	1.6
Magnesia	1.8
Lime	2.3
Potass	44.5
Soda	trace
Silica	13.0
Oxide of iron and alumina	5.2
Carbon, water, and loss	7.6

100.0

ALBUMINOIDS, Albumin, Fibrin, Casein, &c.

Carbon...	...	...	...	...	...	...	...	52.7	to	54.5
Hydrogen	...	...	...	...	...	...	...	6.9	"	7.3
Nitrogen	...	...	...	...	...	...	...	15.4	"	16.5
Oxygen	...	...	...	...	...	...	...	20.9	"	23.5
Sulphur	...	...	...	...	...	...	...	.8	"	1.6

VEGETABLE ALBUMEN & FIBRIN.

	Albumen.	Fibrin.
Carbon...	55.01	54.60
Hydrogen	7.23	7.30
Nitrogen	15.92	15.81
Oxygen, sulphur and phosphorus	21.84	22.29
	100.00	100.00

AZOTENE, New Orleans.

Moisture	...	...	...	...	...	...	...	11.26
*Organic matter	...	...	...	...	...	...	...	80.31
Phosphate of Lime	...	...	...	...	...	...	...	3.09
Carbonate of lime and alkalies	...	...	...	...	...	...	...	4.65
Sand	...	...	...	...	...	...	...	.69
								100.00

* Containing nitrogen	...	...	...	...	...	...	...	11.34
Equal to Ammonia	...	...	...	...	...	...	...	13.77

BEEF POWDER, Queensland.

Moisture	...	...	...	...	...	...	...	7.48
*Flesh forming matters	...	...	...	...	...	...	...	67.56
Fat and extractive matters	...	...	...	...	...	...	...	21.55
Mineral matters	...	...	...	...	...	...	...	3.41
								100.00

* Containing nitrogen	...	...	...	...	...	...	...	10.80
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BEEF, Cooked.

Water	...	...	...	...	...	...	...	40.5
Fibrine, gelatine, albumen, &c.	...	...	...	...	...	...	...	23.9
Fat	...	...	...	...	...	...	...	34.5
Mineral matter	...	...	...	...	...	...	...	1.1
								100.0

BREAD.

Water	32.5
Gluten and nitrogenous substances	8.8
Modified starch, gum and sugar	57.6
Mineral matters	1.1
	100.0

BEE-BREAD, or Pollen collected by Bees.

Water	29.89
Ash	3.08
Albumen and peptones	17.81
Sugar	25.12
Fat cerotic acid, oleic acid, myricin, colouring matter, &c.	8.98
Cell membrane	7.56
Pectin	7.42
	99.86

BEECHNUTS, Ash of.

Potash	22.82
Soda	9.50
Magnesia	11.64
Lime	24.50
Phosphoric acid	20.81
Sulphuric acid	2.20
Silica	1.88
Peroxide of iron	2.67
Chloride of sodium	.87
	96.89
Red oxide of manganese	3.11
	100.00

BROCOLI LEAVES, Ash of.

Potash	22.10
Soda	7.55
Magnesia	3.43
Lime	26.44
Phosphoric acid	16.62
Sulphuric acid	16.10
Silica	1.83
Phosphate of iron	6.21
Chloride of sodium	

BROCOLI HEART, Ash of.

Potash	47·16
Soda	
Magnesia	3·93
Lime	4·70
Phosphoric acid	24·83
Sulphuric acid	10·35
Silica	·69
Phosphate of iron	2·12
Chloride of sodium	trace
Chloride of potassium	6·22

BUTTER, Salt and Fresh.

	Salt.	Fresh.
Water	9·59	13·00
Fat	86·92	85·69
Casein	0·45	0·62
Milk sugar	0·36	0·49
Ash	2·68	0·20
	100·00	100·00

BUTTER & BUTTERINE.

	Isle of Wight.			Sussex.	Jersey.
Water	11·68	13·62	9·70	11·16	6·46
Fat	84·97	83·97	84·74	83·68	89·48
Curd	1·18	1·54	3·46	3·14	2·45
Salt	2·17	·87	2·08	2·00	1·59
	Guildford.	London.		Butterine.	
Water	8·58	23·98	42·35	5·83	
Fat	85·48	67·58	47·11	92·77	
Curd	2·78	6·88	7·83	·53	
Salt	3·15	1·55	2·68	·83	

BARLEY.

	Meal.	Whole.	Scotch. air dried.
Starch	59·95	42·00	52·7
Fat	2·17	2·96	2·6
Cellulose		19·40	11·5
Gum	6·74	6·88	4·2
Sugar	3·20	1·94	
Nitrogenous matter... ..	12·981	14·84	13·2
Ash			2·8
Water... ..	15·00	12·00	12·0

BARLEY.

Water	14·35
Ash	2·71
Protein compounds	9·34
Respiratory principles	64·98
Fibre	8·62
	100·00
Nitrogen	1·61

BARLEY, Ash of.

Potash	3·91
Soda	16·79
Magnesia	10·05
Lime	3·36
Phosphoric acid	40·63
Sulphuric acid	·26
Silica	21·99
Peroxide of iron... ..	1·93
	98·92

BRAN.

Moisture	12·86
Albuminous compounds	13·88
Starch	55·56
Fibre	11·50
Mineral matter	6·20
	100·00

BRAN.

Gluten	10·84
Albumen	1·60
Starch	22·66
Sugar	
Gum	5·28
Fat	2·82
Water	10·30
Ligneous matter	43·98
Chloride of potassium	·23
Sulphate potash	·24
Phosphate of magnesia	·93
Carbonate of lime	·37
Silica	·75

BEETS, Silesian Sugar Beets.	Long red		Pear-shaped white root.
	83·43	82·70	
Moisture	83·43	82·70	82·27
Albuminous compounds	1·53	1·23	1·08
Crude fibre	3·49	3·60	3·73
Crystallizable sugar	10·04	10·72	11·14
Pectin and colouring matter	·50	·68	·74
Ash	1·01	1·07	1·04
	100·00	100·00	100·00

BEETS, Silesian Sugar Beets—Suffolk.

	1.	2.	3.
Moisture	83·11	82·72	83·03
Albuminous compounds	1·25	1·44	1·71
Crude fibre	3·43	3·38	4·31
Crystallizable sugar	10·51	10·94	9·31
Pectin and colouring matter	·63	·45	·60
Ash	1·07	1·07	1·04
	100·00	100·00	100·00

BEET ROOT.

Water	70·11
Albuminous compounds (flesh forming matters)	2·25
Sugar	3·39
Mucilage, pectin and other substances soluble in water	1·93
Digestible fibre	15·13
Woody fibre (cellulose)	5·32
Mineral matter (ash) soluble in water	1·87
Mineral matter (ash) insoluble in water	
	100·00

RED BEET, Ash of.

Carbonic acid	16·1
Sulphuric acid	1·6
Phosphoric acid	6·0
Chlorine	5·2
Magnesia	4·4
Lime	7·0
Potash	39·0
Soda	6·0
Silica	8·0
Oxide of iron and alumina	2·5
Water, carbon and loss	4·2
	100·0

BILBERRY, Ash of.

	No. 1.	No. 2.
Carbonate of potash	16·38	23·50
Sulphate of potash		
Chloride of potassium... ..		
Carbonate of lime... ..	40·35	53·70
Carbonate of magnesia	5·85	—
Alumina	17·54	14·25
Silica	13·45	1·75
Oxide of iron and manganese	6·43	6·80
	100·00	100·00

BUCKWHEAT, Ash of.

Potash	8·74
Soda	20·10
Magnesia	10·38
Lime	6·66
Phosphoric acid	50·07
Sulphuric acid	2·16
Silica	·69
Peroxide of iron... ..	1·05
	99·85

BEERS, Sweet.

	Strasburg.	Munich.	Vienna.
Alcohol by vol. cubic cents.	47·0	56·25	52·5
Glucose, grams.	16·3	15·1	11·0
Albuminoid substances	45·0	58·4	55·3
Dextrin, &c., grams.			
Salts, grams.	2·65	2·52	2·3

BEERS, Bitter—North of France.

Alcohol by vol. in cubic cents.	40·0	32·5	36·0
Glucose in grams.	7·03	4·8	6·6
Dextrin in grams., and	31·77	31·0	33·1
Albuminoid substances			
Salts in grams.... ..	1·6	2·1	2·2

BEERS.

	Allsop's.	Bass's.
Specific gravity... ..	1·010	1·006
Alcohol	6·000	7·000
Extractive	5·000	4·800
Acetic acid... ..	·200	·180
Water	88·800	88·020
	100·000	100·000

BEERS—C. Place & Co., Somerset.

	XX.	XXX.	Pale Ale.
Specific gravity	1·012	1·011	1·002
Alcohol	4·620	6·750	6·750
Acetic acid	·180	·356	·254
Sugar and extractive... ..	4·515	4·923	4·746
Albuminous compounds	1·375	·437	·350
Ash	·201	·200	·196
Water	89·109	87·334	87·704
	100·000	100·000	100·000

BEER, German.

	Lichtenhain.	Jena*
Alcohol	3·168	3·018
Albumen	·048	·045
Extractive matter	4·485	6·144
Water	92·299	90·793
	100·000	100·000

	Bockbier.	Heilliger Vater.
Alcohol	4·000	5·000
Extractive matter	8·200	13·500
Carbonic acid	·085	·077
Water	87·393	81·923
Specific gravity	1·020	1·030

BEERS, Austrian Lager.

	St. Marxer.	Hütteldorf.	Liesinger.
Specific gravity	1·018	1·017	1·017
Alcohol	2·760	3·670	3·110
Carbonic acid	·240	·160	·200
Extractive matter	6·000	6·050	6·550
Ash	·243	·200	·220
Water	91·240	90·280	90·340

BEERS, Austrian.

	Prague.	Ale.	Ladies' Beer.
Specific gravity	1·016	1·020	1·018
Alcohol	4·320	3·680	2·890
Carbonic acid	·290	·280	·150
Extractive matter	5·950	7·100	5·950
Ash	—	·227	·213
Water	89·730	89·220	91·160

BEER, Ashes of.

	London.	Munich.	Ale, Scotch.	Porter, Dublin.
Potash	38·35	36·58	29·8	32·0
Soda	7·68	9·03	38·5	42·7
Lime	2·45	1·48	2·0	1·5
Magnesia	3·78	5·64	5·6	1·2
Sulphuric acid	1·36	1·68	19·2	10·1
Chlorine	2·75	3·14	18·0	10·1
Silica	9·87	9·96	19·1	19·7
Phosphoric acid	33·76	31·69	25·7	20·0

BEER, Stout.

Water	87·44
Alcohol	6·32
Ash	·45
Albuminous compounds	·47
Acetic acid	·03
Gum, sugar, &c.	5·29
	100·00

BEER, No. 1.

Water	89·78
Alcohol	4·30
Grape sugar	2·07
Acetic acid	·08
Mineral matters	·32
Albuminous compounds	·68
Gum, colouring matter, &c.	2·77
	100·00

BEER, 2nd Sample.

Water	91.60
Alcohol	3.60
Grape sugar	1.26
Acetic acid	.17
Mineral matter	.20
Albuminous compounds	.52
Gum, colouring matter, &c.	2.65
	100.00

BEAN (Windsor), Ash of.

Potash	20.82
Soda	17.40
Magnesia	8.87
Lime	7.26
Phosphoric acid	37.94
Sulphuric "	1.34
Silica	2.46
Peroxide of iron	1.03
Chloride of sodium	2.45
	99.57

BEANS (Common), Ash of.

Carbonic acid	1.0
Sulphuric acid	1.6
Phosphoric acid	34.2
Chlorine	0.7
Magnesia	8.6
Lime	5.1
Potass	45.2
Soda	0.0
Silica	0.5
Oxide of iron and alumina	trace
Carbon, water, and loss	3.1
	100.0

BEAN (Common), Ash of.

Potash	38.89
Soda	11.41
Magnesia	9.03
Lime	5.90
Phosphoric acid	31.34
Sulphuric acid	2.47
Silica	.44
Peroxide of iron	.11
Chloride of sodium	.54
	100.13

BEANS, Kidney.

Fat...	2.56
Sugar	1.17
Gummy matter	11.39
Starchy "	19.60
Cellulose	2.34
Protein compounds	24.93
Non-nitrogenous matter	33.98
Ash	4.03

100.00
BEANS, Kidney, Ash of.

Potash	36.83
Soda	18.40
Magnesia	6.33
Lime	7.75
Phosphoric acid	14.60
Sulphuric acid	3.96
Silica	4.09
Phosphate of iron	5.24
Chloride of sodium	2.80

BEANS, French, Ash of.

Carbonic acid	3.3
Sulphuric acid	1.3
Phosphoric acid	26.8
Chlorine	0.1
Magnesia	11.5
Lime	5.8
Potash	49.1
Soda	0.0
Silica	1.0
Oxide of iron and alumina	trace
Carbon, water and loss	1.1

100.0
BEAN MEAL.

Moisture	14.80
Legumin and nitrogenous compounds	23.30
Starch, &c.	48.50
Fibre	10.00
Mineral matter	3.40

100.00

CHEESE, made with Rennet (Gruyère), Ash of.

	Rennett.	With sour milk.
Alkalies... ..	13.48	42.69
Lime	39.32	8.92
Magnesia	1.77	—
Peroxide of iron	.35	.40
Phosphoric acid	45.00	47.88
Silicic acid	.18	.11
	100.10	100.00

CHEESE, American.

	No. 1.	No. 2.
Water	27.29	33.04
Butter	35.41	33.38
*Casein	25.87	27.37
Milk sugar, lactic acid, &c.	6.21	2.82
†Ash	5.22	3.39
	100.00	100.00
* Containing nitrogen	4.14	4.38
† “ salt	1.97	.47

CHEESE.

	Leicester.	Wiltshire	Warwickshire.
Water	35.21	34.44	31.97
Butter	27.28	28.71	29.08
*Casein	27.93	29.00	27.43
Milk sugar, lactic acid, &c.	5.54	3.60	7.16
†Ash	4.04	4.25	4.36
	100.00	100.00	100.00
* Containing nitrogen	4.47	4.64	4.39
† “ salt	1.03	1.03	.72

CHEESE, Stilton and Cotherstone.

Water	32.18	38.28
Butter	37.36	30.89
*Casein	24.31	23.93
Milk sugar, and extractive matters	2.22	3.70
†Mineral matters	3.93	3.20
	100.00	100.00
* Containing nitrogen... ..	3.89	3.88
† “ common salt	.89	.79

CHEESE.

	Cheddar.	Double Gloucester.	Skim.
Water	36·64	35·61	43·64
Casein	23·38	21·76	45·64
Fatty matter	35·44	38·16	5·76
Mineral matter... ..	4·54	4·47	4·96
	100·00	100·00	100·00

CHEESE, Swedish Whey.

Water	24·21
Fatty matter	20·80
*Casein and albumen	9·06
Milk sugar and extractive matters	41·01
Mineral matters	4·92
	100·00

* Containing nitrogen 1·45

CHEESE, Norwegian Skim Milk, called Gamelost.

Water	42·44
Butter	3·36
*Casein	42·12
Milk sugar	9·85
Ash	2·22

* Containing nitrogen 6·72

CHERRY, Ash of.

	Whole fruit.	Stalk.
Potash	51·85	42·66
Soda	1·12	6·17
Magnesia... ..	5·46	2·71
Lime	7·47	22·26
Phosphoric acid	14·21	14·89
Sulphuric acid	5·09	2·98
Silica	9·04	2·59
Phosphate of iron... ..	3·74	2·35
Chloride of sodium	2·02	2·39

CABBAGE, Winter, Ash of.

	Leaves.	Stalk.
Potash	31·728	39·415
Soda... ..	2·015	3·517
Lime	14·426	12·355
Magnesia... ..	2·845	4·887
Ferric oxide	8·108	1·347
Phosphoric acid	10·093	12·263
Sulphuric acid	6·087	9·203
Silica	1·198	0·845
Chlorine	7·640	6·805
Carbonic acid... ..	13·114	7·878
Sand and charcoal... ..	2·692	1·325
	99·946	99·840

CABBAGE.

Water	89·42
Oil	·08
*Soluble protein compounds	1·19
Sugar, digestible fibre, &c.	7·01
Soluble mineral matter	·73
†Insoluble protein compounds	·31
Woody fibre... ..	1·14
Insoluble mineral matter	·12
	100·00
* Containing nitrogen	·19
† Containing nitrogen	·05

CABBAGE, Boiled and Natural State.

	Boiled.	Natur l state.
Water	91·50	89·40
Oil	—	·10
Albumen, &c.... ..	1·61	1·50
Woody fibre	1·02	1·14
Cellular tissue and sugar	4·09	7·01
Mineral matters	1·78	·85

CABBAGE LEAVES, Ash of.

Potash	11.70
Soda... ..	20.42
Magnesia... ..	5.94
Lime	20.97
Phosphoric acid	12.37
Sulphuric "	21.48
Silica	.75
Peroxide of iron	.60
Chloride of sodium	
Chlorine	5.77

CARROTS.

Water	87.30
Albumen, &c.	.66
Cellular tissue, gum and non-nitrogenous substances	2.56
Sugar	5.54
Fibre	3.20
Mineral matters	.74
	100.00

CAULIFLOWER, Ash of.

Potash	34.39
Soda... ..	14.79
Magnesia... ..	2.38
Lime	2.96
Phosphoric acid	25.84
Sulphuric acid	11.16
Silica	1.92
Phosphate of iron... ..	3.67
Chloride of sodium	2.78

CUCUMBER, Ash of.

Potash	47.42
Soda... ..	
Magnesia... ..	4.26
Lime	6.31
Phosphoric acid	14.97
Sulphuric acid	4.60
Silica	7.12
Phosphate of iron... ..	2.06
Chloride of sodium	9.06
Chloride of potassium	4.19

CAYENNE.

Acrid soft resin	...	...	...	...	...	...	...	...	4·0
Wax...	...	...	...	...	...	...	...	...	7·6
Bitter aromatic extract	...	...	...	...	...	...	...	...	8·6
Gum and extractive matter	...	...	...	...	...	...	...	...	21·0
Albuminous	“	...	...	...	...	...	...	...	3·2
Gum...	...	...	...	...	...	...	...	...	9·2
Fibre	...	...	...	...	...	...	...	...	28·0
Water	...	...	...	...	...	...	...	...	12·0
Loss...	...	...	...	...	...	...	...	...	6·4

CELERY, Ash of.

Potash	...	...	...	...	...	...	...	...	22·07
Soda...	...	...	...	...	...	...	...	...	—
Magnesia...	...	...	...	...	...	...	...	...	5·82
Lime	...	...	...	...	...	...	...	...	13·11
Phosphoric acid	...	...	...	...	...	...	...	...	11·58
Sulphuric acid	...	...	...	...	...	...	...	...	5·58
Silica	...	...	...	...	...	...	...	...	3·85
Phosphate of iron...	...	...	...	...	...	...	...	...	2·66
Chloride of sodium	...	...	...	...	...	...	...	...	—
Chloride of potassium...	...	...	...	...	...	...	...	...	33·41

COCOA NUT, Ash of.

Potash	...	...	...	...	...	...	...	...	40·57
Soda...	...	...	...	...	...	...	...	...	2·30
Lime	...	...	...	...	...	...	...	...	4·71
Magnesia...	...	...	...	...	...	...	...	...	2·95
Oxide of iron...	...	...	...	...	...	...	...	...	3·54
Phosphoric acid	...	...	...	...	...	...	...	...	26·98
Sulphuric acid	...	...	...	...	...	...	...	...	3·78
Silicic acid	...	...	...	...	...	...	...	...	3·38
Chlorine	...	...	...	...	...	...	...	...	13·42

COCOA.

	Caked.	Flaked
Water	3·77	3·60
Fatty matter	50·20	54·90
Albuminoid matter	16·64	16·51
Starch, gum, cellulose, &c...	25·47	21·27
Theobromine	·70	·47
Mineral matter	3·22	3·25
	100·00	100·00

COCOA.

Fatty matter	53·10
Albuminous matter, containing the aroma of the bean	16·70
Starch	10·91
Gum	7·75
Lignine	·90
Red pigment	2·01
Water	5·20
Loss	3·43
	100·00

COCOA NIBS.

Water	15·56
Theobromine	·50
Albuminous compounds	15·06
Solid and liquid fat	36·68
Cellular tissue, gum, and other non-nitrogenous } compounds }	24·04
Woody fibre	5·20
Mineral matter	2·96
	100·00

COCOA NUT, Oil.

Oil	71·488
Zymome	7·665
Mucilage	3·588
Crystalizable glycerine..	1·595
Yellow colouring matter	0·325
Ligneous matter	14·950
Loss	0·389
	100·000

COCOA NUT, Kernel.

Fat oil	53·10
Azotized substances	16·70
Starch	10·91
Gum	7·75
Colouring matter	2·01
Woody fibre	·90
Water	5·28
Ash	2·00
Loss	1·35

COCOA BEAN, Ash of.

Potash	33·4	37·14
Soda... ..	—	1·23
Lime	11·0	2·90
Magnesia... ..	17·0	16·00
Sulphuric acid	4·5	1·50
Carbonic “	1·0	1·20
Phosphoric “	29·6	39·60
Phosphate of iron... ..	—	0·70
Chlorine	0·2	1·70
Silica	3·3	—

COCOA, Nuts and Cake of.

	Nut.	Cake.
Water	5·80	11·89
Fat	67·85	12·34
Cellulose... ..	24·80	69·66
Ash	1·55	6·11
	100·00	100·00

CIDER, Common Devonshire.

Water	94·21
Alcohol	4·17
Sugar (grape)	·35
Dextrine	·51
Albuminous compounds	·02
Acid... ..	·54
Mineral matter	·20
	100·00

CIDER, Grains per Pint,

Water	8292·41
Alcohol	367·69
Sugar (grape)	31·67
Dextrine	45·05
Albuminous compounds	1·94
Acid... ..	44·86
Mineral matter	18·38
	8802·00

CIDER.

Specific gravity	...	...	...	...	...	1012·92	1013·08
Alcohol	...	...	...	...	...	4·70	4·88
Malic acid	...	...	...	...	...	·36	·32
Acetic "	...	...	...	...	...	·08	·11
Sugar	...	...	...	...	...	3·63	3·96
Mineral matter	...	...	...	...	...	·27	·53
Total solids	...	...	...	...	...	(5·76)	(6·14)

CHICORY, Raw Root.

Hygroscopic moisture	...	...	...	...	...	...	77·0
Gummy matter (like pectin)	...	...	...	...	...	...	7·5
Glucose or grape sugar	...	...	...	...	...	...	1·1
Bitter extractive	...	...	...	...	...	...	4·0
Fatty matter	...	...	...	...	...	...	·6
Cellulose, inuline and woody matter	...	...	...	...	...	...	9·0
Ash	...	...	...	...	...	...	·8
							100·0

CHICORY, Roasted Root.

Hygroscopic moisture	...	...	...	...	...	...	14·5
Gummy matter	...	...	...	...	...	...	9·5
Glucose	...	...	...	...	...	...	12·2
Matter (like burnt sugar)	...	...	...	...	...	...	29·1
Fatty matter	...	...	...	...	...	...	2·0
Brown or burnt woody matter	...	...	...	...	...	...	28·4
*Ash	...	...	...	...	...	...	*4·3
							100·0

***CHICORY. Ash of.**

Chloride of potassium	..	...	...	...	...	...	·22
Sulphate of potash	...	...	...	...	...	...	·97
Phosphate of potash	...	...	...	...	...	...	1·41
" " magnesia	...	...	...	...	...	...	·30
" " lime	...	...	...	...	...	...	·40
Carbonate of lime	...	...	...	...	...	...	·10
Alumina and oxide of iron	...	...	...	...	...	...	·20
Sand	...	...	...	...	...	...	·70
							*4·30

COFFEE, Roasted.

Caffeic principle	12.50
Extractive	4.80
Gum and mucilage	10.42
Oil and resin	2.08
Solid residue	68.75
Loss	1.45
	100.00

COFFEE.

	Raw.	Roasted.
Water	8.26	0.36
Cane sugar	8.18	1.84
Caffeine	1.10	1.06
Fat	11.42	8.30
Gluten	10.68	12.03
Gum tannin, &c.	14.03	26.28
Cellulose	42.36	44.96
Ash	3.97	5.17
	100.00	100.00

COFFEE, Raw.

Peculiar caffeic principle	17.58
Gummy extract	3.64
Extractive	.62
Resin	.41
Fatty oil	.52
Solid residue	66.66
Loss and water	10.57
	100.00

COFFEE, Berry.

Water	13.0
Theine	.5
Nitrogenous matter	13.0
Essential oil	10.0
Tannic acid	5.5
Woody fibre	30.0
Gum, cellular fibre, &c.	21.5
Mineral matter	6.5
	100.0

COFFEE, a cup of 10 oz. liquid.

Casein (from the cream)	7·5
Fatty substances with little sugar from cream ...	41·0
Sugar	140·0
Extract of coffee	52·5
Mineral substances	(10·75)
Organic "	(41·75)
Mineral substances (from cream)	1·5
Total solid matters	242·5

COFFEE, Ash of.

	Ceylon.	Java.	Jamaica.	Mocha.
Potash	55·10	54·00	53·72	51·52
Soda	—	—	—	—
Lime	4·10	4·11	6·16	5·87
Magnesia	8·42	8·20	8·37	8·87
Sesquioxide of iron	·45	·73	·44	·44
Sulphuric acid... ..	3·62	3·49	3·10	5·26
Chlorine	1·11	·26	·72	·59
Carbonic acid	17·47	18·13	16·54	16·98
Phosphoric acid	10·36	11·05	11·13	10·15
Silica... ..	—	—	—	—
Sand	—	—	—	—
	100·63	99·97	100·18	99·68

COFFEE, Infusion, Ash of.

Potash	51·45
Lime	3·58
Magnesia... ..	8·67
Peroxide of iron	0·25
Phosphoric acid	10·02
Sulphuric "	4·01
Silicic "	0·73
Carbonic "	20·50
Oxide of manganese	—
Chloride of potassium	1·98
Soda... ..	—
Charcoal and sand	0·49
	101·68

CHESTNUT, Kernel, Brazil.

Water	...	...	...	...	...	...	...	...	...	8.00
Oil	...	...	...	...	...	...	...	...	...	65.60
Nitrogenous substances	...	...	...	...	...	...	...	...	...	15.31
Organic matter (non-nitrogenous)	...	...	...	...	...	...	...	...	...	7.39
Phosphoric acid	...	...	...	...	...	...	...	...	...	1.35
Lime, potash, silica, &c.	...	...	...	...	...	...	...	...	...	2.35
										100.00

DATES.

Water	...	...	...	...	...	...	...	...	...	21.60
Oil	...	...	...	...	...	...	...	...	...	19
Sugar	...	...	...	...	...	...	...	...	...	56.41
Albuminous compounds	...	...	...	...	...	...	...	...	...	10.93
Woody fibre	...	...	...	...	...	...	...	...	...	2.38
Mineral matter	...	...	...	...	...	...	...	...	...	1.50
Pectin, mucilage, &c.	...	...	...	...	...	...	...	...	...	6.99
										100.00

DATES, Babylon.

Water	...	...	...	...	...	...	...	...	...	20.83
Gum and sugar	...	...	...	...	...	...	...	...	...	61.20
Albumen	...	...	...	...	...	...	...	...	...	2.48
Fibre	...	...	...	...	...	...	...	...	...	6.23
Ash	...	...	...	...	...	...	...	...	...	2.01
Pectin, &c.	...	...	...	...	...	...	...	...	...	7.25
										100.00

EGG.

Water	...	...	...	...	...	...	...	...	...	74.02
Albumen	...	...	...	...	...	...	...	...	...	14.08
Oil and fat	...	...	...	...	...	...	...	...	...	10.25
Mineral matter	...	...	...	...	...	...	...	...	...	1.65
										100.00

EGG, dry,

Fibrin, casein, albumen	...	...	...	...	...	...	...	...	...	55.00
Fat	...	...	...	...	...	...	...	...	...	40.00
Mineral matter (ash)	...	...	...	...	...	...	...	...	...	5.00
										100.00

ENDIVE, Ash of.

Potash	37·87
Soda... ..	12·12
Magnesia... ..	1·77
Lime	12·03
Phosphoric acid	
Sulphuric “	5·21
Silica	24·62
Phosphate of iron... ..	6·36
Chloride of sodium	trace

FOOD, “Neave's Farinaceous.”

Moisture	4·9
Flesh forming matters, gluten, &c.	13·6
Respiratory food, starch, sugar, gum &c.	78·0
Saline matters, phosphates	1·2
Cellulose	2·3
	100·0

SALMON, Roe of.

Lecithin	7·5
Cholesterin	2·2
Fat	4·5
Albumen	10·3
*Nuclein	48·7
Protamine	28·8

* An albuminoid substance rich in phosphorus.

FISH.

	Carp.	Trout.
Water	80·10	80·5
Muscular fibre	12·00	11·1
Albumen and hæmatoglobulin	5·20	4·4
Alcohol extract	1·00	1·6
Water “	1·70	0·2
Phosphate of lime, &c.... ..	—	2·2

FISH.

	Fibrin.	Oil.
Skate	97	3
Haddock	92	8
Herring	92	8
Salmon	78	22
Eels	44	56

OYSTERS, in tin, Baltimore.

Water	45·93
Nitrogenous principles... ..	} 29·69
Flesh forming “	
Non-nitrogenous matter	12·54
Fatty matters... ..	8·39
*Mineral “	3·45
	100·00
* Containing phosphates	0·88

FIGS.

Water	24·94
Soluble albuminous substances	·55
Insoluble substances	1·38
Gummy matter	12·75
Sugar	48·90
Fibre and seeds	9·71
*Mineral matter	1·77
* Contains phosphate of magnesia.	100·00

FIG, Ash of.

Potash	28·36
Soda	24·14
Magnesia... ..	9·21
Lime	18·91
Phosphoric acid	
Sulphuric acid	6·73
Silica	5·93
Phosphate of iron... ..	2·76
Chloride of sodium	4·02

FIGS.

Water	21·0
Gluten	6·0
Starch, sugar, &c... ..	73·0
	100·0

HORSE FLESH.

Creatine	7·60
Sarcine	1·28
Xanthine... ..	0·11
Inosite	0·30
Sarcolactic acid	4·47
Taurine	0·70

FLESH OF PORPOISE.

Creatine	6·10
Sarcine	1·05
Xanthine... ..	traces
Inosite	0·08
Sarcolactic acid	7·45
Taurine	—

FLESH, Lean Cow.

	Neck.	Leg.	Paunch.	Loin.
Water	76·49	77·09	77·53	76·58
Fixed material	23·51	22·91	22·47	23·42
Fat	1·28	0·92	0·783	2·62
Muscle substance	21·23	20·99	20·687	19·80

Fat Ox.

Water	77·97	74·88	76·80	70·60
Fixed material	22·03	25·02	23·20	23·40
Fat	0·95	4·00	4·33	7·96
Muscle substance	20·08	20·02	17·87	20·44

Very Fat Ox.

Water	76·15	73·26	67·81	67·35
Fixed material	23·85	26·74	32·19	32·65
Fat	2·82	5·76	8·812	12·86
Muscle substance	20·03	19·08	22·378	18·79

FLESH OF OXEN.

Water	77·17	77·03	77·50	77·50
Fibrin cells, vessels and nerves	17·70	18·18	17·50	15·00
Albumen and hæmatoglobulin	2·20	2·70	2·20	4·30
Alcohol extracts and salts	1·80	1·94	1·50	1·32
Water ditto	1·05	1·15	1·30	1·80
Phosphate of lime with albumen	0·08	—	traces	—
Fat and loss	—	—	—	0·08

FLESH of

	Water.	Fibre and vessels.	Albumen, &c.	Alcohol extract, &c.	Water extract & salts.	Phos- phate of lime & albumen.
Calf ...	79.7	15.0	3.2	1.1	1.0	0.1
" ...	78.2	16.2	2.6	1.4	1.6	traces
Swine	78.3	16.8	2.4	1.7	0.8	traces
Roe ...	76.9	18.0	3.3	2.4		0.4
Pigeon	76.0	17.0	4.5	1.0	1.5	—
Chicken	77.3	16.5	3.0	1.4	1.2	0.6
Human	78.0	17.0	2.3	1.6	1.0	0.1
"	77.1	15.8	3.4	1.2	2.5	—

GOOSEBERRY.

	Unripe.	Ripe.
Green colouring matter	0.03	—
Sugar	0.52	6.24
Gum	1.36	0.78
Albumen...	1.07	0.87
Malic acid	1.80	2.41
Citric acid	0.12	0.30
Lime...	0.24	0.29
Lignin with seeds	8.45	8.01
Water	86.41	81.10
	100.00	100.00

GOOSEBERRY, Ash of.

Potash	38.65
Soda...	9.27
Magnesia...	5.85
Lime	12.20
Phosphoric acid	15.58
Sulphuric acid	5.89
Silica	2.58
Phosphate of iron...	8.65
Chloride of sodium	1.23

GREENGAGES, Ash of.

Potash	59.21
Soda...	5.4
Magnesia...	5.46
Lime	10.04
Phosphoric acid	12.26
Sulphuric acid	3.83
Silica	2.36
Phosphate of iron...	6.04
Chloride of sodium	trace

GINGER.

Pale yellow volatile oil	...	...	...	...	...	...	1.56
Aromatic acrid soft resin	...	...	...	...	...	...	3.60
Extractive soluble in alcohol	...	...	...	...	...	...	.65
Acidulous and acrid extractive insoluble in alcohol	...	...	...	...	...	...	10.50
Gum	...	...	...	...	...	...	12.05
Starch analogous to bassorin	...	...	...	...	...	...	19.75
Apothème extracted by potash (ulmin ?)	...	...	...	...	...	...	26.00
Bassorin	...	...	...	...	...	...	8.30
Woody fibre	...	...	...	...	...	...	8.00
Water	...	...	...	...	...	...	11.90

102.31
ASH OF GRAPES, Entire.

Sulphate of potash	...	...	...	...	...	...	5.0
Chloride of potassium	...	...	...	...	...	...	2.7
Carbonated alkalie	...	...	...	...	...	...	44.4
Carbonate of lime	...	...	...	...	...	...	10.5
Phosphate of lime	...	...	...	...	...	...	23.5
Silicic acid	...	...	...	...	...	...	1.4
Carbonate of magnesia	...	...	...	...	...	...	12.5

GRAPE SKINS, Ash of, Purple and White.

	Purple.	White.
Potash	41.65	46.89
Soda	2.13	1.62
Lime	20.31	21.73
Magnesia	6.02	4.45
Oxide of manganese	.76	.51
Iron	2.11	1.97
Sulphuric acid	3.48	3.88
Chlorine	.49	.71
Silica	3.46	2.57
Phosphoric acid	19.57	15.66

GRAPE STONES, Ash of.

	Purple.	White.
Potash	27.89	29.45
Soda	—	—
Lime	32.18	35.57
Magnesia	8.53	8.51
Oxide of manganese	.35	.45
Iron	.45	.65
Sulphuric acid	2.40	2.61
Chlorine	.27	.35
Silica	.95	1.27
Phosphoric acid	27.00	21.05

GRAPE JUICE, Ash of.

Potash	·251
Soda... ..	·011
Lime	·020
Magnesia... ..	·016
Oxide of manganese	·001
Iron	·002
Sulphuric acid	·019
Silica	·009
Phosphoric acid	·068
	·397

GRAPE MUST (Ash of), White Ripe.

Potash	62·74
Soda... ..	2·66
Lime	5·11
Magnesia... ..	3·95
Oxide of manganese	·30
Iron	·40
Sulphuric acid	4·89
Chlorine	·70
Silica	2·18
Phosphoric acid	17·04

GELATIN.

	Theory.	Mulder.	Scherer.
Carbon	50·00	50·04	50·4
Hydrogen	6·41	6·47	6·9
Oxygen	25·64	25·13	23·8
Nitrogen	17·95	18·36	18·9
	100·00	100·00	100·0

GELATIN, Sugar of.

	Theory.	Mulder.
Carbon	34·04	34·06
Hydrogen	6·38	6·49
Oxygen	39·72	39·61
Nitrogen... ..	19·86	19·84
	100·00	100·00

HONEY.

	1.	2.	3.
Water	17·48	19·56	16·88
Cane sugar	—	·94	1·82
Glucoses	82·50	79·48	81·00
Insoluble matter	trace	trace	trace
Mineral "	0·02	0·02	·30

HOPS.

Volatile oil	2·00
Lupulin	10·30
Resin	55·00
Lignin	32·00
Loss	·70
	100·00

LUPULIN OF HOP.

Tannin	4·16
Extractive	8·33
Bitter principles	9·16
Wax... ..	10·00
Resin	30·00
Lignin	38·33
	99·98

HOPS, Ash of.

	Bently.	Golding.
Potash	11·98	25·56
Soda... ..	—	—
Lime	17·93	18·47
Magnesia... ..	5·94	5·27
Alumina	—	—
Oxide of iron... ..	1·86	1·41
Sulphuric acid	7·01	11·68
Chlorine	—	—
Silica	22·97	9·99
Carbonic acid... ..	5·44	4·54
Phosphoric acid	21·38	17·58
Chloride of sodium	5·45	4·34
" potassium	—	·12
Carbon and loss	—	—

HOPS, Entire Plant, Ash of.

Potash	25·18
Soda... ..	—
Magnesia... ..	5·77
Lime	15·98
Phosphoric acid	12·13
Sulphuric acid	5·41
Silica	21·50
Peroxide of iron	5·12
Chloride of sodium	7·24
Chloride of potassium	1·67
	100·00

ICELAND MOSS.

Water	...	...	...	...	...	...	...	...	15.04
Protein	...	...	...	...	...	...	...	...	4.47
Crude fat	...	...	...	...	...	...	...	...	5.79
Crude fibre	...	...	...	...	...	...	...	...	1.49
Extractive matter (non-nitrogenous)	...	...	...	...	...	...	...	...	72.03
Ash, minus sand and carbonic acid	...	...	...	...	...	...	...	...	1.19

ISINGLASS.

Gelatin	...	...	...	...	...	...	...	...	70.0
Osmazon	...	...	...	...	...	...	...	...	16.0
Membrane insoluble in boiling water	...	...	...	...	...	...	...	...	2.5
Free acid and salts of soda, potash, and phosphate	...	...	...	...	...	...	...	...	4.0
of lime	...	...	...	...	...	...	...	...	
Water	...	...	...	...	...	...	...	...	7.5
									100.0

KOUMISS.

Specific gravity	...	...	...	...	...	...	...	...	1.1286
Water	...	...	...	...	...	...	...	...	80.62
Alcohol	...	...	...	...	...	...	...	...	36.22
Lactic acid	...	...	...	...	...	...	...	...	2.56
Sugar	...	...	...	...	...	...	...	...	23.76
Albuminates	...	...	...	...	...	...	...	...	20.99
Butter	...	...	...	...	...	...	...	...	20.08
Inorganic salts	...	...	...	...	...	...	...	...	5.74
Free carbonic acid	...	...	...	...	...	...	...	...	1.99

KOHL-RABI.

	Green top.	Purple top.
Water	86.020	89.002
Oil	.227	.177
*Soluble protein compounds	2.056	2.006
Sugar, gum and pectin	6.007	4.486
Salts soluble in water	.970	.919
†Insoluble protein compounds	.300	.269
Digestible fibre and insoluble pectinous compounds	2.993	1.896
Woody fibre	1.230	1.106
Insoluble mineral matters	.197	.139
	100.000	100.000
* Containing nitrogen	.329	.321
† Containing nitrogen	.048	.043

LEMON SEEDS, Ash of.

Potash	...	...	...	...	...	...	...	...	...	33.89
Soda...	...	...	...	...	...	...	...	...	...	3.56
Magnesia...	...	...	...	...	...	...	...	...	...	8.67
Lime	...	...	...	...	...	...	...	...	...	12.87
Phosphoric acid	...	...	...	...	...	...	...	...	...	34.81
Sulphuric acid	...	...	...	...	...	...	...	...	...	3.30
Silica	...	...	...	...	...	...	...	...	...	.35
Peroxide of iron	...	...	...	...	...	...	...	...	...	.24
Chloride of sodium	...	...	...	...	...	...	...	...	...	2.31

LETTUCE, Ash of.

Potash	...	...	...	...	...	...	...	...	...	46.01
Soda	...	...	...	...	...	...	...	...	...	5.29
Magnesia	...	...	...	...	...	...	...	...	...	2.17
Lime	...	...	...	...	...	...	...	...	...	6.05
Phosphoric acid	...	...	...	...	...	...	...	...	...	8.52
Sulphuric acid	...	...	...	...	...	...	...	...	...	3.89
Silica	...	...	...	...	...	...	...	...	...	20.23
Phosphate of iron...	...	...	...	...	...	...	...	...	...	-trace
Chloride of sodium	...	...	...	...	...	...	...	...	...	7.82

LIQUORICE ROOT.

Glycyrrhisin	...	...	...	...	...	...	...	...	...	8.60
Gum...	...	...	...	...	...	...	...	...	...	26.60
Soluble matter in alcohol	...	...	...	...	...	...	...	...	...	.75
Albumen...	...	...	...	...	...	...	...	...	...	.97
Starch	...	...	...	...	...	...	...	...	...	22.91
Fibre	...	...	...	...	...	...	...	...	...	13.36
Water	...	...	...	...	...	...	...	...	...	26.81

100.00

Ash ... 3.07 per cent.

LIME JUICE.

Specific gravity	...	...	...	...	...	1036.04	1018.40
Citric acid	...	...	...	...	...	7.16	3.47
Total solids	...	...	...	...	...	8.91	5.05
Mineral matter	...	...	...	...	...	.46	.39
Sulphuric acid	...	...	...	...	...	—	.43

LEMON.

	Leaves.	Rind	Seeds.	Juice.
Potash	10.15	34.42	41.89	54.56
Soda	1.78	2.07	1.88	1.42
Lime	61.83	38.87	16.75	15.19
Magnesia	11.06	11.33	4.52	4.85
Sulphuric acid	4.85	3.44	3.39	4.94
Phosphoric acid	4.67	8.38	29.18	15.63
Silica	3.49	.66	1.13	1.77
Loss and undetermined matter	2.17	.83	1.26	1.64

LEMON JUICE.

	1.	2.	3.
Specific gravity	1035.16	1034.72	1020.96
Citric acid	7.77	7.640	2.72
Total solids	8.99	8.970	4.61
Mineral matter	.26	.310	.21
Sulphuric acid	.002	.002	.82

LARD.

Stearine	38
Margarine	62
Oleine	100

LEEKs.

Water	90.00	
Oil	.27	} Insoluble in water.
Woody fibre	4.07	
Ash (mineral matter)	.35	
Albuminous compounds	.25	} Soluble in water.
Gum, sugar, &c.	4.62	
Mineral matter	.44	
	100.00	

LEEEKS, Ash of.

Insoluble silica	...	...	...	...	...	...	...	5.785
Soluble silica	...	...	...	...	...	...	...	1.635
Lime	...	...	...	...	...	...	...	9.955
Peroxide of iron	...	...	...	...	...	...	...	1.727
Magnesia	...	...	...	...	...	...	...	5.295
Soda	...	...	...	...	...	...	...	5.457
Potash	...	...	...	...	...	...	...	33.115
Sulphuric acid	...	...	...	...	...	...	...	8.197
Phosphoric acid	...	...	...	...	...	...	...	11.764
Carbonic acid	...	...	...	...	...	...	...	9.721
Chlorine	...	...	...	...	...	...	...	7.349
								100.000

MILK, Condensed and Powder.

			Milk powder.
Water	...	24.30	26.50
Casein	...	18.52	16.30
Sugar of milk	...	16.50	17.54
Cane sugar	...	27.11	27.06
Fat	...	10.80	9.50
Mineral matter	...	2.12	2.39
Phosphoric acid	...	.64	0.70
			} .26

MILK, Whey of.

	1.	2.
Water	92.80	93.05
Butter	.59	.40
Albuminous compounds	.91	.95
Milk sugar, lactic acid, &c.	5.04	4.96
Ash	.66	.64
100.00		100.00

MILK, Cream of.

	1.	2.
Water	74.46	61.67
Fat	18.18	33.43
Casein	2.69	2.62
Sugar of milk	4.08	1.56
Ash	.59	.72

MILK, Cream of.

Water	...	...	...	...	62·12	61·50	63·24
Fat	...	...	...	...	30·64	32·22	31·42
Casein	...	...	...	...	5·83	5·14	2·70
Sugar of milk	...	...	...	...	1·27	·74	2·36
Ash	...	...	...	...	·14	·40	·28

						Skim milk.	Colos- trum.
Water	...	...	...	...	...	89·65	75·8
Butter	...	...	...	...	...	·79	2·6
Casein	...	...	...	...	...	3·01	15·0
Milk sugar	...	...	...	...	...	5·72	3·6
Ash	...	...	...	...	...	·83	3·0

MILK, Cows.

Casein	...	...	...	...	...	...	4·48
Butter	...	...	...	...	...	...	3·13
Sugar of milk	...	...	...	...	...	...	4·77
Salts	...	...	...	...	...	...	·60
Water	...	...	...	...	...	...	87·02

No. 2.

Water	...	...	...	...	...	...	86·65
Butter	...	...	...	...	...	...	3·99
Casein	...	...	...	...	...	...	3·47
Milk sugar	...	...	...	...	...	...	5·11
Ash	...	...	...	...	...	...	·78

MILK, Ash of.

Potash	...	...	...	...	...	...	23·46
Soda...	...	...	...	...	...	...	6·96
Lime	...	...	...	...	...	...	17·37
Magnesia...	...	...	...	...	...	...	2·20
Phosphoric acid	...	...	...	...	...	...	28·40
Chloride of sodium	...	...	...	...	...	...	4·74
Chloride of potassium...	...	...	...	...	...	...	14·18

MILK, Ash of.

	No. 1.	No. 2.
Phosphate of lime	47·14	50·81
Phosphate of magnesia	8·57	9·45
Perphosphate of iron	1·43	1·04
Chloride of potassium	29·38	27·03
Chloride of sodium	4·89	5·00
Soda... ..	8·57	6·64
	99·98	99·97

MILK, Human, in 1000 grs.

	Average of 14 analyses.	Woman age 36.	Woman age 20.
Water	883·6	894·0	898·0
Solid constituents... ..	116·4	106·0	102·0
Butter	25·3	38·0	28·8
Casein	34·3	34·0	32·0
Sugar of milk, &c.	48·2	40·5	36·0
Fixed salts	2·3	1·8	

MILK, Human.

	4th day after delivery.	9th day after delivery.	12th day after delivery.
Water	879·848	885·818	905·809
Solid constituents... ..	120·152	114·182	94·191
Butter	42·968	35·316	33·454
Casein	35·333	36·912	29·111
Sugar of milk, &c.	41·135	42·979	31·537
Salts... ..	2·095	1·691	1·939

MILK, Human, Ash of

Carbonate of lime... ..	6·9
Phosphate of lime	70·6
Chloride of sodium	9·8
Other salts	5·3
Sulphate of soda	7·4

SOW'S MILK.

Water	81·80
Fats	6·00
Casein and other nitrogenous matters	5·30
Lactin	6·07
Mineral matter	·83
	100·00
Total solids	18·20

MILK.

	Asses.	Goats.
Water	91·65	85·54
Casein	1·80	4·52
Butter	1·12	4·08
Sugar	5·03	5·40
Mineral matters	·40	·46
	100·00	100·00

MILK OF COCOA NUT.

Water	91·50
Protein	·46
Fat	·07
Non-nitrogenous extractive matter	6·78
Ash of	1·19

MILK OF COCOA NUT, Ash of.

Potash	55·200
Soda... ..	·728
Lime	3·679
Magnesia... ..	6·606
Chlorine	10·373
Phosphoric acid	20·510
Sulphuric acid	5·235
Silicic acid	—
	102·331
Deducting oxygen replaceable by chlorine	2·338
	99·993

MANNA.

Manna sugar or mannite	40
Grape sugar (?)	10
Gum, with gluten, &c.... ..	40
Water	10
	100

MANGOLDS.

	1.	2.
Water	89·0	87·440
Flesh forming substances	1·5	1·100
Gum sugar, &c.	5·5	7·408
Fibre	3·0	2·583
Ash	1·0	1·469
Oil	none	none
	100·0	100·00

MAIZE.

Moisture	14.96
Oil	6.50
Albuminous compounds	11.27
Sugar, mucilage, starch, &c.	60.98
Woody fibre	5.02
Mineral matters	1.27
	100.00

MAIZE.

Starch	50.1	54.8
Fat	4.4	4.7
Cellulose	14.9	20.4
Gum and sugar	2.3	2.9
Nitrogenous matter	8.7	8.9
Ash	1.6	1.8
Water	11.5	13.2

MAIZE SEED, Ash of.

Potash	14.00
Phosphate of lime... ..	47.50
Chloride of potassium... ..	.25
Sulphate of potash	.25
Earthy phosphates	36.00
Silica	1.00
Metallic oxides	.12
Loss	.88
	100.00

MILLET, Ash of.

Potash	9.58
Soda... ..	1.31
Magnesia... ..	7.66
Lime	.86
Phosphoric acid	18.19
Sulphuric acid	.35
Silica	59.63
Peroxide of iron	.63
Chloride of sodium	1.43
	99.64

MUSTARD FARINA, Mixed Brown and White.

	1.	2.	3.
Water	5·702	5·163	5·084
Fixed oil... ..	36·491	35·942	33·979
Myronic acid	2·704	2·212	·963
Myrosin and albumen	31·686	27·360	27·616
Acrid salt	5·714	9·085	11·258
Cellulose... ..	13·373	15·574	16·807
Ash	4·330	4·664	4·293
{ Oil of mustard	0·710	·581	·253
{ Nitrogen	5·341	5·047	5·208
{ Sulphur	1·308	1·424	1·403

BROWN MUSTARD FARINA.

Water	4·845
Fixed oil... ..	35·701
Myronic oil	4·840
Myrosin and albumen	29·536
Acrid salt	3·588
Cellulose... ..	16·765
Ash	4·725
Nitrogen	5·068
Sulphur	1·413

WHITE MUSTARD FARINA.

Water	5·360
Fixed oil... ..	35·768
Acrid salt	10·983
Myrosin and albumen	27·414
Cellulose	16·295
Ash	4·110
Sulphur	1·224
Nitrogen	5·285

MUSTARD, Black, Ash of.

Potash	39·51
Soda... ..	3·98
Magnesia... ..	6·43
Lime	5·91
Phosphoric acid	34·50
Sulphuric acid	4·91
Silica	
Peroxide of iron	1·05
Chloride of sodium	3·71

 100·00

MUSTARD, White, Ash of.

Potash	9.80
Soda... ..	9.18
Magnesia... ..	11.00
Lime	20.81
Phosphoric acid	36.60
Sulphuric acid	5.29
Silica	3.29
Peroxide of iron	1.43
Chloride of sodium	.33
	97.73

MUTTON SOUP, Concentrated Australian.

Water	31.29
Fatty matter	.35
*Nitrogenous matters, gelatine and meat extract ...	64.27
Saline matters	4.09
	100.00
* Containing nitrogen	10.75

MEAT, Extract of (Monte Video).

Soluble in 80 per cent. alcohol	81.00
Water	16.50
Fat and albumen	
Nitrogen	9.78
Total ash... ..	21.36
Phosphoric acid	6.10
Potash	8.87
Soda... ..	2.30

MEAT, Fresh.

Water	73.4
Soluble albumen and hæmatin	2.25
Insoluble albuminous substances as fibrin	15.2
Gelatinous substances	3.3
Fat	2.87
Extractive matters	1.38
Kreatin	.068
Ash	1.6

MEAT, Ash of Fresh Beef and Salt.

	Fresh.	Salt.
Chloride of sodium	·310	·691
“ potassium	·154	—
Potash	·540	·398
Soda... ..	·026	—
Lime	·051	·012
Magnesia... ..	·023	·030
Oxide or phosphate of iron... ..	·011	·017
Phosphoric acid	·435	·346
Sulphuric acid	·036	·010
Chlorine	—	—
Silica	·014	·004

MEAT, Ash of Fresh and Salt Pork.

	Fresh.	Salt.
Chloride of sodium	·012	5·700
“ potassium	—	·173
Potash	·420	·350
Soda... ..	·045	—
Lime	·083	·027
Magnesia.. ..	·004	·035
Oxide or phosphate of iron... ..	·494	·006
Phosphoric acid	·054	·312
Sulphuric acid	·000	·013
Chlorine	—	—
Silica	—	—

MEAT FLOUR, from Fray-Bentes.

Water	10·48
Fat	12·42
Albuminoids (containing nitrogen 12·01)... ..	72·06
* Ash, contains per cent.	4·88
* Potash	1·99
Soda	1·33
Lime	8·79
Magnesia	1·16
Ferric oxide	5·80
Phosphoric acid	15·33
Sulphuric acid	·82
Silica	·66
Chlorine	·31
Sand... ..	53·33
Carbonic acid and loss... ..	7·48

VEAL, Ash of (common salt deducted).

Phosphate of potash	...	...	...	...	...	...	68·05
“ soda	...	...	...	...	...	...	5·66
“ lime	...	...	...	...	...	...	3·72
“ magnesia	...	...	...	...	...	...	6·24
Free phosphoric acid	...	...	...	...	...	...	15·10
Peroxide of iron	...	...	...	...	...	...	·30
Silicic acid	...	...	...	...	...	...	·92
							99·99

FLESH OF ANIMALS, Ash of.

		Horse.	Ox, washed out.	Ox-brain.
Free phosphoric acid	...	2·62	80·96	16·42
Alkaline phosphates	...	17·23	48·06	26·26
Earthy phosphates	...	16·57	74·41	9·02

FLESH, Ashes of.

Phosphoric acid	...	...	...	...	...	...	36·60
Potash	...	...	...	...	...	...	40·20
Earths and oxide of iron	...	...	...	...	...	...	5·69
Sulphuric acid	...	...	...	...	...	...	2·95
Chloride of potassium	...	...	...	...	...	...	14·81
							100·25

			When boiled there enter into soup.	There remains in the ex- hausted meat.
Phosphoric acid	...	...	26·24	10·36
Potash	...	...	35·42	4·78
Earths and iron	...	...	3·15	2·54
Sulphuric acid	...	...	2·95	—
Chloride of potassium	...	...	14·81	—
			82·57	17·68

NUTMEG.

Volatile oil	...	...	...	...	...	...	...	...	6·0
Liquid fat	...	...	...	...	...	...	...	...	7·6
Solid fat	...	...	...	...	...	...	...	...	24·0
Acid...	...	...	...	...	...	...	...	...	·8
Starch	...	...	...	...	...	...	...	...	2·4
Gum...	...	...	...	...	...	...	...	...	1·2
Fibre	...	...	...	...	...	...	...	...	54·0
Loss	...	...	...	...	...	...	...	...	4·0
									100·0

ONIONS.

Moisture	87·684
Albumen, &c.	1·432
Mucilage	9·770
Woody fibre	·639
Ash	·475

100·000

ONIONS, Portugal.

	Water	88·880
	Oil	·240
Insoluble in water.	Woody fibre	2·177
	Albumen	·240
Soluble in water.	Ash	·033
	Albumen	·234
	Gum	7·653
	Sugar	1·450

100·907

ONIONSTALK, Ash of.

Potash	13·98
Soda... ..	14·43
Magnesia... ..	trace
Lime	25·10
Phosphoric acid	trace
Sulphuric acid	10·50
Silica	19·77
Phosphate of iron	10·61
Chloride of sodium	trace

ONIONS, Ash of Portugal.

Insoluble silica	·552
Soluble silica	·000
Peroxide of iron	·357
Lime	9·326
Magnesia... ..	4·244
Chloride of sodium	2·833
“ potassium	4·529
Potass	39·005
Sulphuric acid	11·658
Phosphoric acid	19·339
Carbonic acid... ..	8·157

100·000

ORANGE, Fruit.

Water	...	...	...	...	...	...	...	...	90·03
Citric acid	...	...	...	...	...	...	...	...	1·09
Soluble albumen	...	...	...	...	...	...	...	...	·05
Insoluble albumen...	...	...	...	...	...	...	...	...	·26
Sugar	...	...	...	...	...	...	...	...	4·60
Gum	...	...	...	...	...	...	...	...	2·89
Cellulose	...	...	...	...	...	...	...	...	·65
Ash	...	...	...	...	...	...	...	...	·43

100·00
ORANGE, Ash of.

Potash	...	...	...	...	...	...	...	...	36·42
Soda	...	...	...	...	...	...	...	...	11·42
Magnesia...	...	...	...	...	...	...	...	...	8·06
Lime	...	...	...	...	...	...	...	...	24·52
Phosphoric acid	..	...	...	...	...	...	...	...	11·07
Sulphuric acid	...	...	...	...	...	...	...	...	3·74
Silica	...	...	...	...	...	...	...	...	·44
Peroxide of iron	...	...	...	...	...	...	...	...	·46
Chloride of sodium	...	...	...	...	...	...	...	...	3·87

PEARS, Ash of.

Potash	...	...	...	...	...	...	...	...	54·69
Soda...	...	...	...	...	...	...	...	...	8·52
Magnesia...	...	...	...	...	...	...	...	...	5·22
Lime	...	...	...	...	...	...	...	...	7·98
Phosphoric acid	...	...	...	...	...	...	...	...	14·28
Sulphuric acid	...	...	...	...	...	...	...	...	5·69
Silica	...	...	...	...	...	...	...	...	1·49
Phosphate of iron	...	...	...	...	...	...	...	...	1·96
Chloride of sodium	...	...	...	...	...	...	...	...	trace

PEAR, Fruit.

Water	...	...	...	...	...	...	...	...	86·25
Grape Sugar	...	...	...	...	...	...	...	...	6·45
Vegetable fibre	...	...	...	...	...	...	...	...	3·80
Gummy matter	...	...	...	...	...	...	...	...	3·17
Malic acid	...	...	...	...	...	...	...	...	0·14
Albumen...	...	...	...	...	...	...	...	...	0·08
Chlorophyl	...	...	...	...	...	...	...	...	0·08
Ash	...	...	...	...	...	...	...	...	0·03

PEAR, Ash of.

Potash	54.69
Soda... ..	8.69
Lime	7.98
Magnesia... ..	5.22
Sulphuric acid	5.69
Silicic acid	1.49
Phosphoric acid	14.28
Phosphate of sesquioxide of iron	1.96
Chloride of sodium	trace

PLUM, Orleans, Ash of.

	Kernel.	Shell.
Potash	26.52	21.69
Soda... ..	1.94	7.69
Magnesia... ..	16.17	3.77
Lime	8.49	28.06
Phosphoric acid	33.05	25.24
Sulphuric acid	7.11	6.61
Silica	2.38	2.57
Phosphate of iron	3.83	4.37
Chloride of sodium	.49	trace

PLUM, Orleans, Ash of.

	Skin.	Pulp.
Potash	58.86	54.59
Soda... ..	3.52	8.72
Magnesia	9.29	4.69
Lime	8.25	4.86
Phosphoric acid	9.85	15.44
Sulphuric acid	1.96	3.23
Silica	.81	3.15
Phosphate of iron	7.45	4.80
Chloride of sodium	trace.	.62

PINEAPPLE, Ash of.

Potash	49.42
Soda... ..	—
Magnesia	8.80
Lime	12.15
Phosphoric acid	4.08
Sulphuric acid	trace
Silica	4.02
Phosphate of Peroxide of iron	2.93
Chloride of sodium	17.01
Chloride of Potassium	.88

PEAS, Ash of.

Potash	36.31
Soda... ..	1.30
Magnesia	12.24
Lime	10.39
Phosphoric acid	31.00
Sulphuric acid	4.84
Silica	1.54
Peroxide of iron	
Chloride of sodium	1.87

 99.49
PEAS, Ash of.

Carbonic acid... ..	.05
Sulphuric acid	4.7
Phosphoric acid	30.1
Chlorine	1.1
Magnesia... ..	11.9
Lime	10.1
Potass	35.3
Soda... ..	2.5
Silica	1.5
Oxide of iron and alumina	trace
Carbon, water and loss	2.3

 100.0
PEPPER, White.

Water and loss	19.29
Acrid Resin	16.60
Volatile oil	1.61
Gum and salts	12.50
Starch	18.50
Albumen... ..	2.50
Fibre	29.00

 100.00
PARSNIPS.

Water	82.20
Albumen, &c.	1.28
Cellular tissue, gum and non-nitrogenous matter... ..	8.92
Sugar	3.20
Fibre	3.47
Mineral matter (ash)	.93

 100.00

POTATOES.

Water	75 0
*Albuminous compounds	2 3
Starch, &c.	18 7
Woody fibre	3 0
†Mineral matter	1 0
	100 00
*Containing nitrogen	37
†Containing phosphoric acid	14
and potash	48

POTATO, Ash of.

	No. 1.
Carbonic acid... ..	13 4
Sulphuric acid	7 1
Phosphoric acid	11 3
Chlorine	2 7
Magnesia,	5 4
Lime	1 8
Potash	51 5
Soda... ..	trace
Silica	5 6
Oxide of iron and alumina	5
Carbon, water and loss	7
	100 0

POTATOES, Ash of.

	No. 2.
Potash	46 80
Soda... ..	28
Magnesia... ..	9 40
Lime	3 44
Phosphoric acid	13 55
Sulphuric acid	4 34
Silica	5 25
Peroxide of iron	5 10
Chloride of sodium	2 56
Chloride of potassium	2 50

QUINCE, *Pyrus Cydonia* Seeds, Ash of.

Potash	...	...	...	...	...	...	...	...	27.09
Soda...	...	...	...	...	...	...	...	...	3.01
Magnesia...	...	...	...	...	...	...	...	...	13.01
Lime	...	...	...	...	...	...	...	...	7.69
Phosphoric acid	...	...	...	...	...	...	...	...	42.02
Sulphuric acid	...	...	...	...	...	...	...	...	2.67
Silica	...	...	...	...	...	...	...	...	.75
Peroxide of iron	...	...	...	...	...	...	...	...	1.19
Chloride of sodium	...	...	...	...	...	...	...	...	2.57
									100.00

RHUBARB, Stalks.

Water	...	...	...	...	...	...	...	...	96.72
Malic and other acids	...	...	...	...	...	...	...	...	1.41
Soluble albumen	...	...	...	...	...	...	...	...	.04
Insoluble albumen	...	...	...	...	...	...	...	...	trace
Gum...	...	...	...	...	...	...	...	...	.66
Sugar	...	...	...	...	...	...	...	...	.21
Cellulose	...	...	...	...	...	...	...	...	.67
Mineral matter	...	...	...	...	...	...	...	...	.29
									100.00

RHUBARB, Ash of.

	Stalk.	Leaves.
Potash	59.59	14.47
Soda...	.46	31.77
Magnesia...	—	5.59
Lime	10.04	3.95
Phosphoric acid	12.83	30.04
Sulphuric acid	1.89	9.52
Silica	2.77	2.33
Phosphate of iron	2.77	2.33
Chloride of sodium	8.84	trace

RADISH, Ash of.

	Root.	Top.
Potash	21·16	5·05
Soda... ..	—	11·09
Magnesia... ..	3·53	7·08
Lime	8·78	27·90
Phosphoric acid	40·09	6·07
Sulphuric acid	7·71	9·64
Silica	8·17	8·22
Phosphate of iron	2·19	16·45
Chloride of sodium	7·07	8·50
“ Potassium	1·29	—

RYE GRAIN and FLOUR.Mean of
samples
grain.

	Flour.	Flour.	
Gluten	9·48	12·8	—
Albumen	3·28	3·0	8·8
Starch	61·07	58·8	65·5
Sugar	3·28	10·4	—
Gum	11·09	7·2	—
Cellulose... ..	6·38	—	6·4
Fat, acid and loss... ..	5·62	7·8	2·0
Ash	—	—	1·8
Water	—	—	15·5

RICE.

	Raw.	Boiled.
Water	14·20	77·02
Gluten	6·40	1·44
Starch	75·70	20·54
Fibre	3·01	·80
Mineral matter	·69	·20
	100·00	100·00

RICE HUSKS.

Moisture	9·80
Oil	1·10
*Flesh forming matters	4·18
Starch, mucilage, &c.	44·94
Cellulose	26·80
†Ash	13·18
	100·00
*Containing nitrogen	·67
† “ sand	12·34

E

RICE MEAL.

Moisture	8·83
Oil and fatty matters	9·50
*Albuminous compounds	12·75
Starch, mucilage and digestible fibre	50·69
Cellulose	10·14
†Ash	8·09
	100·00
*Containing nitrogen	2·04
† “ sand	3·17

RICE, Ash of.

Potash	18·48
Soda... ..	10·67
Lime... ..	1·27
Magnesia... ..	11·96
Oxide of iron	·45
Phosphoric acid	53·36
Sulphuric acid	
Chlorine	·27
Silica	3·35
Alumina	
	99·81

RUM, Very Old.

Alcohol	32·50
Acetic acid	1·88
Extractive matters	·43
Ash	·03
Water	65·16
	100·00

SEAKALE.

Water	93·72
Soluble albumen	·34
Insoluble albumen... ..	trace
Sugar	·55
Gummy matter	4·17
Cellulose	·57
Mineral matter	·65
	100·00

STRAWBERRIES, Ash of.

Potash	...	...	...	...	...	...	...	...	21·07
Soda...	...	...	...	...	...	...	...	...	27·01
Magnesia...	...	...	...	...	...	...	...	...	trace
Lime	...	...	...	...	...	...	...	...	14·21
Phosphoric acid	...	...	...	...	...	...	...	...	8·59
Sulphuric acid	...	...	...	...	...	...	...	...	3·15
Silica	...	...	...	...	...	...	...	...	12·05
Phosphate of iron	..	..	...	...	...	...	...	...	11·12
Chloride of sodium	...	...	...	...	...	..	..	..	2·78

SPINACH, Ash of.

Potash	...	...	...	...	...	...	...	...	9·69
Soda...	...	...	...	...	...	...	...	...	34·96
Magnesia...	...	...	...	...	...	...	...	...	5·29
Lime	...	...	...	...	...	...	...	...	13·11
Phosphoric acid	...	...	...	...	...	...	...	...	7·89
Sulphuric acid	...	...	...	...	...	...	...	...	9·30
Silica	...	...	...	...	...	...	...	...	3·16
Phosphate of iron	...	...	...	...	...	...	...	...	8·67
Chloride of sodium	...	...	...	...	...	...	...	...	7·93

SUGARCANE, Ash of.

	No. 1.	No. 2.	No. 3. Demerara.
Potash	14·11	11·03	20·42
Soda...	1·16	5·43	8·24
Magnesia...	6·84	11·78	3·80
Lime	8·96	4·45	2·26
Phosphoric acid	4·53	4·84	7·12
Sulphuric acid	10·80	7·67	7·70
Silica	40·85	44·68	17·04
Chloride of potassium	11·51	9·14	30·18
	98·76	99·02	96·76

SUGARCANE, North China, Sorghun Sacchratum.

Water	...	...	...	...	...	...	...	...	85.17
* { Albumen	...	...	...	...	...	...	...	...	.36
* { Other soluble protein compounds	...	...	...	...	...	...	...	...	.90
Mucilage, pectin and digestible fibre	...	...	...	...	...	...	...	...	6.63
Soluble mineral matters	...	...	...	...	...	...	...	...	.81
† Insoluble protein compounds	...	...	...	...	...	...	...	...	1.25
Indigestible woody fibre	...	...	...	...	...	...	...	...	4.57
Insoluble mineral matters	...	...	...	...	...	...	...	...	.31
									100.00
* Containing nitrogen	...	...	...	...	...	...	...	...	.21
† " "	...	...	...	...	...	...	...	...	.20
									.41
Total nitrogen	...	...	...	...	...	...	...	...	

SUGARCANE, Sorghum Saccharatum.

Water	...	...	...	...	...	...	...	...	81.80
* { Albumen	...	...	...	...	...	...	...	...	.37
* { Other soluble protein compounds	...	...	...	...	...	...	...	...	1.16
Sugar	...	...	...	...	...	...	...	...	5.85
Wax and fatty matter	...	...	...	...	...	...	...	...	2.55
Mucilage, pectin and fibre	...	...	...	...	...	...	...	...	2.59
Soluble mineral matters	...	...	...	...	...	...	...	...	.74
† Insoluble protein compounds	...	...	...	...	...	...	...	...	.66
Cellular fibre	...	...	...	...	...	...	...	...	4.05
Insoluble mineral matters	...	...	...	...	...	...	...	...	.23
									100.00
* Containing nitrogen	...	...	...	...	...	...	...	...	.245
† " "	...	...	...	...	...	...	...	...	.106

SUGARCANE.

	Tahiti cane.	Ribbon cane.
Sugar	14.280	13.392
Cellulose	8.867	9.071
Mucilagenous, resinous, fatty and } albuminous matter	.415	.440
Salts, silica, iron	.358	.368
Water	76.080	76.729
100.000		100.000

SUGARS.

	Maple.	French beet.	German beet.
Cane sugar	72·60	94·30	87·80
Fruit sugar	13·95	·25	·33
Extractive	2·11	·27	·75
Soluble salts	1·35	1·30	5·92
Insoluble salts	·03	—	·13
Water	9·96	3·88	5·07
	100·00	100·00	100·00

SUGARS.

	Trinidad.	Demerara.	Molasses.
Cane sugar	90·41	90·80	47·0
Fruit sugar	3·84	4·11	20·4
Extractive	·95	·77	2·7
Soluble salts	·86	·92	2·6
Insoluble salts	·22	·20	—
Water	3·72	3·20	27·3
	100·00	100·00	100·0

	Pernambuco.	Bahia.	Cuba Muscavado.
Cane sugar	88·31	86·80	92·35
Fruit sugar	4·82	5·03	·3·38
Extractive	·94	1·72	·66
Soluble salts	·80	1·21	·62
Insoluble salts	·73	·92	·15
Water	4·40	4·32	2·84
	100·00	100·00	100·00

	Trinidad.	St. Vincent.	Pernam- buco.
Cane sugar	90·41	89·00	88·31
Fruit sugar	3·84	5·85	4·82
Extractive, &c.	·95	·76	·94
Soluble salts	·86	·62	·80
Insoluble salts	·22	·05	·73
Water	3·72	3·72	4·40
	100·00	100·00	100·00

SUGARS.					Bahia.	Maple.	Molasses.
Cane sugar	...	...	...	...	86.80	72.60	47.0
Fruit sugar	...	...	...	...	5.03	13.95	20.4
Extractive, &c.	...	...	...	...	1.72	2.11	2.7
Soluble salts	...	...	...	...	1.21	1.35	2.6
Insoluble salts	...	...	...	...	.92	.03	—
Water	...	...	...	...	4.32	9.96	27.3
					100.00	100.00	100.0

SUGARS and STARCH.					Cane.	Grape.	Starch.
Carbon	...	...	...	...	42.10	40.00	44.44
Hydrogen	...	...	...	...	6.43	6.66	6.17
Oxygen	...	...	...	...	51.47	53.34	49.39
					100.00	100.00	100.00

TEA.						Black.	Green
Water	...	...	...	...	...	11.56	9.37
Tannin	...	...	...	...	...	15.24	18.69
Gum...	...	...	...	...	...	5.70	5.89
Albuminous matter	...	...	...	...	...	15.55	24.39
Theine	...	...	...	...	...	2.53	2.79
Ash ..	...	...	...	...	...	5.82	5.38
Chlorophyll and extractive matters	...	...	...	...	...	5.24	1.83
Matter insoluble in water, cellulose, &c....	...	...	...	...	...	38.36	31.66
						100.00	100.00
Nitrogen	...	...	...	...	...	3.20	4.55

TEA.						Green.	Black.
Essential oil	...	...	...	...	...	.79	.60
Chlorophyll	...	...	...	...	...	2.22	1.84
Wax...	...	...	...	...	...	.28	—
Resin	...	...	...	...	...	2.22	3.64
Gum...	...	...	...	...	...	8.56	7.28
Tannin	...	...	...	...	...	17.80	12.88
Theine	...	...	...	...	...	.43	.46
Extractive	...	...	...	...	...	22.80	19.88
“ dark coloured	...	...	...	...	...	—	1.48
Colourable matter...	...	...	...	...	...	23.60	19.12
Albumen...	...	...	...	...	...	3.00	2.80
Vegetable fibre	...	...	...	...	...	17.08	28.32
Ash	...	...	...	...	...	5.56	5.24
						104.34	103.54

TEA INFUSION, Ash of.

Potash	47·45
Lime	1·24
Magnesia... ..	6·84
Peroxide of iron	3·29
Phosphoric acid	9·88
Sulphuric acid	8·72
Silicic acid	2·31
Carbonic acid	10·09
Oxide of manganese	·71
Chloride of sodium	3·62
Soda... ..	5·03
Charcoal and sand... ..	1·09
	100·27

TEA LEAVES, Ash of.

	Assam.	
	Young.	Old.
Chloride of sodium	2·213	1·972
Soda	3·521	9·432
Magnesia... ..	11·876	7·277
Potash	35·336	13·043
Lime	11·751	31·983
Oxides of iron and manganese	6·985	8·767
Phosphoric anhydride	16·014	14·738
Sulphuric anhydride	11·018	9·429
Silica	1·118	2·554
	99·832	99·195

TEA SEED, Ash of.

Chloride of sodium	
Soda... ..	
Potassium chloride	1·396
Potash	47·336
Magnesia... ..	9·464
Lime	6·467
Oxide of iron and manganese	2·529
Phosphoric anhydride	12·962
Sulphuric anhydride	18·809
Silica	1·037
	100·000
Nitrogen... ..	2·91

TURNIP, Swede.

Water	...	...	...	...	...	...	...	89.460
Flesh forming substances	...	...	...	...	...	...	...	1.443
Gum, sugar, &c.	...	...	...	...	...	...	...	5.932
Fibre	...	...	...	...	...	...	...	2.542
Mineral matters	...	...	...	...	...	...	...	.623
Oil	...	...	...	...	...	...	...	none
								100.000

TURNIPS, White.

Water	...	...	...	...	...	...	...	90.43
*Albuminous compounds	...	...	...	...	...	...	...	1.04
Pectin, sugar and other carbonaceous principles	...	...	...	...	...	...	...	5.46
Woody fibre	...	...	...	...	...	...	...	2.44
†Mineral matter	...	...	...	...	...	...	...	.63
								100.00

*Containing nitrogen	...	...	...	...	...	...	...	.16
+ " Phosphoric acid and	...	...	...	...	...	...	...	.06
Potash	...	...	...	...	...	...	...	.23

TURNIP, Swede, Ash of.

Carbonic acid	...	...	...	...	...	...	...	14.0
Sulphuric acid	...	...	...	...	...	...	...	10.9
Phosphoric acid	...	...	...	...	...	...	...	6.1
Chlorine	...	...	...	...	...	...	...	2.9
Magnesia	...	...	...	...	...	...	...	4.3
Lime	...	...	...	...	...	...	...	10.9
Potash	...	...	...	...	...	...	...	33.7
Soda	...	...	...	...	...	...	...	4.1
Silica	...	...	...	...	...	...	...	6.4
Oxide of iron and alumina	...	...	...	...	...	...	...	1.2
Carbon, water and loss	...	...	...	...	...	...	...	5.5
								100.00

VINEGAR, Crosse & Blackwell's.

Specific gravity	...	...	...	...	...	...	...	1.02040
Glacial acetic acid in 1000 parts	...	...	...	...	...	...	...	68.200
Sulphate of lime	...	...	...	...	...	...	...	0.115
Free sulphuric acid	...	...	...	...	...	...	...	none
Total residue	...	...	...	...	...	...	...	24.960
Ash	...	...	...	...	...	...	...	3.640

WHEAT, Grain of.

Water	...	...	...	...	...	...	...	...	15.27
Gluten, with little albumen	...	...	...	...	...	...	...	...	11.64
Starch and sugar	...	...	...	...	...	...	...	...	68.74
Fibre	...	...	...	...	...	...	...	...	2.60
Mineral matter	...	...	...	...	...	...	...	...	1.75
									100.00.

WHEAT.

	White.	Odessa.	Polish.
Water	14.6	15.2	13.2
Fatty matters	1.0	1.5	1.5
Nitrogenous matters insoluble in water	8.3	12.7	19.8
Soluble nitrogenous matters	2.4	1.6	1.7
Soluble non-nitrogenous matter dextrin	9.2	6.3	6.8
Starch	62.7	61.3	55.1
Cellulose	1.8		
Saline matter		1.4	1.9

WHEAT FLOUR.

	French.	Odessa.	Paris.	Inferior.
Starch	71.49	56.5	72.8	67.78
Gluten	10.96	14.55	10.2	9.02
Sugar	4.72	8.48	4.2	4.80
Gum	3.82	4.90	2.8	4.60
Bran		2.30		
Water	10.00	12.00	10.0	12.00

WHEAT BRAN.

Starch	...	...	...	...	...	...	52.0
Gluten	...	...	...	...	...	...	14.9
Sugar	...	...	...	...	...	...	1.0
Fat	...	...	...	...	...	...	3.6
Woody fibre	...	...	...	...	...	...	9.7
Salts	...	...	...	...	...	...	5.0
Water	...	...	...	...	...	...	13.8
							100.0

WHEAT, Ash of.

	White.	Red.
Potash	33·84	21·87
Soda	—	15·75
Magnesia	13·54	9·60
Lime	3·09	1·93
Phosphoric acid	49·21	49·32
Sulphuric acid	—	·17
Silica	—	—
Peroxide of iron	·31	1·36
	99·99	100·00

WHEAT, Grain, Ash of.

Carbonic acid... ..	—
Sulphuric acid	1·0
Phosphoric acid	47·0
Chlorine	trace
Magnesia... ..	15·9
Lime	2·9
Potash	29·5
Soda... ..	trace
Silica	1·3
Oxide of iron and alumina	—
Carbon, water and loss	2·4
	100·0

WHEAT, Ash of.

	French.	Egyptian.	Mean of 23.
Potash	32·40	36·6	29·35
Soda	2·30	0·5	1·10
Lime... ..	3·50	4·3	3·40
Magnesia... ..	13·90	11·1	10·70
Oxide of iron	1·00	1·2	2·40
Sulphuric acid	·35	0·2	—
Silica	3·03	5·0	2·50
Carbonic acid	—	—	—
Chloride of sodium	—	—	0·13
Phosphoric acid	43·50	41·0	49·70

WALNUT, Kernel, Ash of.

Potash	31·11
Soda... ..	2·25
Magnesia... ..	13·03
Lime	8·59
Phosphoric acid	42·53
Sulphuric acid	trace
Silica	—
Phosphate of iron	2·49
Chloride of sodium	trace
Chloride of potassium	—

W I N E S.**CHAMPAGNE.**

Water	90·00
Alcohol	5·00
Sugar	4·00
Acid... ..	1·00
	100·00

CLARET.

Water	92·00
Alcohol	6·00
Sugar	trace
Acid	2·00
	100·00

PUBLIC-HOUSE SHERRY—30/- $\frac{1}{2}$ dozen.

		Grains in one bottle.
Specific gravity	997·900	—
Absolute alcohol	18·154	2117·9
Proof spirit	36·868	4301·3
Grape sugar	1·421	165·8
Cane sugar	1·741	203·1
Tartaric acid	·360	42·0
Acetic acid	·066	7·7
Sulphuric acid	·135	15·7
Phosphoric acid	·017	2·0
Total residue	5·776	673·9
Ash	·390	45·5
Alkalinity of ash	·010	1·2
Nitrogen	·027	3·1
Sulphate of potash	—	33·9
Bitartrate of potash	—	4·8

IMITATION SHERRY.

Specific gravity	996·000	—
Alcohol	16·480	—
Grape sugar	2·230	—
Tartaric acid	·010	—
Acetic acid	·111	—
Sulphuric acid	—	—
Phosphoric acid	·027	—
Residue	3·602	—
Ash	·327	—
Alkalinity of ash	·028	—
Bitartrate of potash	—	—

HAMBORO SHERRY—18/- ½ dozen.

Specific gravity	...	...	...	...	995·300	Grains in one bottle.
						—
Absolute alcohol	...	...	...	...	18·613	2171·5
Proof spirit	...	...	...	...	37·800	4410·0
Grape sugar	...	...	...	...	4·383	511·4
Cane sugar	...	...	...	...	—	—
Fixed acid	...	...	...	...	·285	33·3
Acetic acid	...	...	...	...	·006	·7
Sulphuric acid	...	...	...	...	·034	3·9
Phosphoric acid	...	...	...	...	·015	1·7
Total residue	...	...	...	...	4·976	560·5
Ash	...	...	...	...	·124	14·5
Alkalinity of ash	...	...	...	...	·013	1·5
Nitrogen	...	...	...	...	·018	2·1
Sulphate of potash	...	...	...	...	—	8·5
Bitartarate of potash	...	...	...	...	—	6·0

RESTAURANT SHERRY—24/- ½ dozen.

Specific gravity	...	...	...	...	991·800	Grains in one bottle.
						—
Absolute alcohol	...	...	...	...	18·538	2162·8
Proof spirit	...	...	...	...	37·648	4392·3
Grape sugar	...	...	...	...	2·493	290·9
Cane sugar	...	...	...	...	—	—
Tartaric acid	...	...	...	...	·360	42·0
Acetic acid	...	...	...	...	·045	5·3
Sulphuric acid	...	...	...	...	·096	11·2
Phosphoric acid	...	...	...	...	·022	2·6
Total residue	...	...	...	...	3·926	458·0
Ash	...	...	...	...	·326	38·0
Alkalinity of ash	...	...	...	...	·016	1·9
Nitrogen	...	...	...	...	·017	2·0
Sulphate of potash	...	...	...	...	—	24·4
Bitartarate of potash	...	...	...	...	—	7·6

PALE SHERRY.

Specific gravity	990·200	Grains in one bottle.
		—
Absolute alcohol	17·903	2088·7
Proof spirit	36·359	4241·9
Grape sugar	1·018	118·8
Cane sugar	—	—
Tartaric acid	·360	42·0
Acetic acid	·036	4·2
Sulphuric acid	·178	20·7
Phosphoric acid	·012	1·4
Total residue	3·594	419·3
Ash	·466	54·4
Alkalinity of ash	·010	1·2
Nitrogen	·027	45·0
Sulphate of potash	—	4·8
Bitartrate of potash	—	—

CADIS SHERRY—30/- ½ dozen.

Specific gravity	9901·000	Grains in one bottle.
		—
Absolute alcohol	17·584	2051·4
Proof spirit	35·701	4165·1
Grape sugar	1·243	145·1
Cane sugar	—	—
Tartaric acid	·432	50·4
Acetic acid	·026	3·0
Sulphuric acid	·210	24·5
Phosphoric acid	·010	1·2
Total residue	2·764	322·5
Ash	·500	58·3
Alkalinity of ash	·009	1·0
Nitrogen	·025	2·9
Sulphate of potash	—	53·3
Bitartrate of potash	—	4·0

OLD BROWN SHERRY.

Specific gravity	1004.480
Absolute alcohol by weight... ..	16.210
Proof spirit	32.920
Grape sugar	4.015
Cane sugar	nil
Tartaric acid	.405
Acetic acid	.049
Sulphuric acid	.113
Phosphoric acid	.027
Total residue	6.493
Ash	.411
Nitrogen	.030
Alkalinity of ash	.028
Sulphate of potash	nil
Bitartrate of potash	nil

SUPERIOR OLD MADEIRA.

Specific gravity	1000.650	Grains in one bottle.
Absolute alcohol	16.155	1884.7
Proof Spirit	32.809	3827.7
Grape sugar	3.652	426.0
Cane sugar	—	—
Tartaric acid	.531	61.9
Acetic acid	.054	6.3
Sulphuric acid	.134	15.7
Phosphoric acid	.067	7.8
Total residue	5.925	691.2
Ash	.342	39.9
Alkalinity of ash	.053	6.2
Nitrogen	.018	2.1
Sulphate of potash	—	34.8
Bitartrate of potash	—	24.1

SUPERIOR OLD BUHOL MADEIRA.

						Grains in one bottle.
Specific gravity	...	...	...	...	1002·080	
Absolute alcohol	...	...	...	...	16·084	1876·5
Proof spirit	...	...	...	...	32·664	3810·8
Grape sugar	..	...	...	...	2·348	273·9
Cane sugar	...	...	...	...		
Tartaric acid	...	...	...	...	0·526	61·4
Acetic acid	...	...	...	...	·088	10·3
Sulphuric acid	...	...	...	...	·132	15·4
Phosphoric acid	...	...	...	...	·084	9·8
Total residue	...	...	...	...	6·409	747·7
Ash	...	...	...	...	·349	40·7
Alkalinity of ash	...	...	...	...	·036	4·2
Nitrogen	...	...	...	...	·022	2·6
Sulphate of potash	...	...	...	...	—	33·5
Bitartarate of potash	...	...	...	...	—	16·8

BEST MARSALA.

						Grains in one bottle.
Specific gravity	...	...	...	...	1003·340	
Absolute alcohol by weight	...	...	...	...	15·523	1811·5
Proof spirit	...	...	...	...	31·545	3681·3
Grape sugar	...	...	...	...	3·598	419·8
Cane sugar	...	...	...	...		
Tartaric acid	...	...	...	...	·465	54·2
Acetic acid	...	...	...	...	·054	6·3
Sulphuric acid	...	...	...	...	·136	15·9
Phosphoric acid	...	...	...	...	·059	6·9
Total residue	...	...	...	...	5·963	695·7
Ash	...	...	...	...	·412	48·1
Alkalinity of ash	...	...	...	...	·026	3·0
Nitrogen	...	...	...	...	·034	4·0
Sulphate of potash	...	...	...	...	—	34·6
Bitartarate of potash	...	...	...	...	—	12·0

MANZANILLA (ORDINARY).

Specific gravity	Per cent.	Grains in one bottle= one-sixth of a gall.
	984·000	
Absolute alcohol by weight	20·333	2372·2
Proof spirit	41·294	4819·6
Grape sugar	·780	91·0
Cane sugar		
Tartaric acid	·306	25·7
Acetic acid	·050	5·8
Sulphuric acid	·163	19·0
Phosphoric acid	·023	2·7
Total residue	2·464	287·4
Ash	·404	47·1
Alkalinity of ash	·028	3·2
Nitrogen	·028	3·2
Sulphate of potash	—	41·3
Bitartrate of potash	—	12·8

FINEST MONTILLA SHERRY.

Specific gravity	990·500
Absolute alcohol by weight	15·830
Grape sugar	1·553
Cane sugar	
Tartaric acid	·411
Acetic acid	·042
Sulphuric acid	·087
Phosphoric acid... ..	·026
Total residue	3·322
Ash	·629
Alkalinity of ash	·019
Nitrogen	·025
Sulphate of potash	—
Bitartrate of potash	—
Proof spirit... ..	32·140

F

SANTIAGO SHERRY.

Specific gravity	990·000
Absolute alcohol by weight	14·640
Proof spirit... ..	29·723
Grape sugar	·087
Cane sugar	—
Tartaric acid	·426
Acetic acid	·067
Sulphuric acid	·206
Phosphoric acid... ..	·021
Total residue	3·005
Ash	·602
Alkalinity of ash	·044
Sulphate of potash	—
Bitartrate of potash	—
Nitrogen	·024

AMONTILLADO SHERRY.

Specific gravity @ 60° Fahrenheit... ..	987·6000
Absolute alcohol by weight	17·0980
Proof spirit... ..	34·7230
Grape sugar	·9910
Cane sugar	—
Tartaric acid	·3750
Acetic acid	·0210
Sulphuric acid	·0870
Phosphoric acid... ..	·0168
Total residue	2 4220
Ash	·5320
Alkalinity of ash	·0190
Nitrogen	·0200
Sulphate of potash	—
Bitartrate of potash	—

WINE, Sediment first formed in "Bragonnot."

Albuminous matter	21
Cream of tartar	61
Tartarate of lime	5
Phosphate of lime	6
Sulphate of lime	2
Alumina—wax-like, fat, &c., &c.	5
	100

PORT WINE.

	No. 1.	No. 2.
Specific gravity	999·500	992·200
Alcohol	17·730	12·082
Grape sugar	3·332	·669
Tartaric acid	·424	—
Acetic acid	·122	·048
Sulphuric acid	—	·032
Phosphoric acid	·510	—
Residue	4·234	2·778
Ash	·237	·247
Alkalinity of ash	·670	·084

GREEK WHITE WINE.

Specific gravity	1004·206
Alcohol	11·240
Grape sugar	6·171
Tartaric acid	·059
Acetic acid	·185
Sulphuric acid	—
Phosphoric acid	·032
Residue	6·567
Ash	·348
Alkalinity of ash	·470
Bitartrate of potash	—

HUNGARIAN WHITE WINE.

Specific gravity	991·600
Alcohol	10·230
Grape sugar	—
Tartaric acid	·056
Acetic acid	·179
Sulphuric acid	—
Phosphoric acid... ..	·031
Residue	1·026
Ash	·189
Alkalinity of ash	·025
Bitartrate of potash... ..	·047

HUNGARIAN RED WINE.

Specific gravity	992·500
Alcohol	10·810
Grape sugar	—
Cane sugar	—
Tartaric acid	·122
Acetic acid	·191
Sulphuric acid	—
Phosphoric acid... ..	·035
Residue	1·677
Ash	·192
Alkalinity of ash	·054
Bitartrate of potash... ..	·122

FRENCH RED WINE.

Specific gravity	999·800
Alcohol	10·440
Grape sugar	2·255
Cane sugar	—
Tartaric acid	·126
Acetic acid	·137
Sulphuric acid	—
Phosphoric acid	·031
Ash	·223
Alkalinity of ash	·044
Bitartrate of potash	·081
Residue	2·145

FRENCH WHITE WINE.

Specific gravity	992·200
Alcohol	10·840
Grape sugar	·088
Cane sugar	—
Tartaric acid	·102
Acetic acid	·169
Sulphuric acid	—
Phosphoric acid	·031
Residue	1·257
Ash	·197
Alkalinity of ash	·024
Bitartarate of potash... ..	—

WINES —SPANISH “NOVARINTA.”

Total solid residue	7·685
Ash	·337
Potash	·112
Bitartarate of potash... ..	·135
Phosphoric acid	·055
Total acidity	·465
Tartaric acid (fixed)	·401
Acetic acid (volatile)... ..	·063
Alcohol by weight	14·934
Alcohol by volume	18·000
Equal to proof spirit... ..	32·580
Grape sugar... ..	6·330

GERMAN WHITE WINE.

Specific gravity	993·500
Absolute alcohol	9·980
Grape sugar	·310
Cane sugar	—
Tartaric acid	·124
Acetic acid	·217
Sulphuric acid	—
Phosphoric acid	·031
Residue	1·337
Ash	·182
Alkalinity of ash	·025
Bitartarate of potash... ..	·079

GREEK RED WINE.

Specific gravity	1004·200
Alcohol	9·820
Grape sugar	—
Tartaric acid	—
Acetic acid	·170
Sulphuric acid	—
Phosphoric acid	—
Residue	2·790
Ash	·250
Alkalinity of ash	·090
Bitartrate of potash	—

MARSALA.

Specific gravity	999·500
Alcohol	16·380
Grape sugar... ..	2·750
Tartaric acid	—
Acetic acid	·117
Sulphuric acid	—
Phosphoric acid	·010
Residue	5·007
Ash	·311
Alkalinity of ash	·021
Bitartrate of potash... ..	—

AUSTRALIAN RED WINE.

Specific gravity	1000·200
Alcohol	13·190
Grape sugar	2·642
Tartaric acid	·070
Acetic acid	·332
Sulphuric acid	—
Phosphoric acid	·024
Residue	4·055
Ash	·266
Alkalinity of ash	·038
Bitartrate of potash... ..	—

AUSTRALIAN WHITE WINE.

Specific gravity	989.500
Alcohol	13.370
Grape sugar	.183
Tartaric acid	.052
Acetic acid	.211
Sulphuric acid	
Phosphoric acid	.012
Residue	1.639
Ash	.234
Alkalinity of ash	.031
Bitartrate of potash... ..	

W A T E R S.

WATER of Neuragoczi, on the Saale.

	In 100.000 parts.
Silica	3.16
Alumina	2.12
Ferrous carbonate	2.68
Potassic sulphate	30.06
Calcic carbonate... ..	21.30
Calcic sulphate	32.24
Magnesian carbonate	
Magnesian sulphate	14.47
Sodic carbonate	50.08
Magnesian chloride	
Sodic chloride	1010.00
Organic matter	5.49
Total constituents	1171.60

WATER of the Rhine, near Koln.

	Grammes in 10 litres.
Chlorine	·0247
Sulphuric acid	·1957
Lime	·7494
Magnesia	·2254
Soda	·0160
Potash	trace
Ferric oxide... ..	·0012
Alumina	·0010
Silica	·0040
Phosphoric acid	·0061
Nitric acid	trace
Carbonic acid	·7071
Water	·0696
Organic matter	·5198

WATER, New River Company.

	19·3 grs. $\frac{1}{4}$ imp. gallon.
Carbonate of lime and magnesia	12·6
Sulphate of lime... ..	1·9
Alkaline sulphates	·2
Alkaline chlorides	1·2
Alkaline nitrates	1·0
Silica, alumina, &c.	·5
Organic matter	1·9

WATER, Thames at high tide at London Bridge.

Carbonates of lime and magnesia	11·7
Sulphate of lime... ..	4·3
Alkaline sulphates	·6
Alkaline chlorides	11·1
Alkaline nitrates	2·0
Silica, alumina, &c.	·4
Organic matters	3·7
Amount of grains per imperial gallon	33·8

WATER, River Mahanuddy.

	Centigr. per litre.
Potassium	·137
Sodium	·493
Magnesium	·385
Calcium	1·314
Iron	·015
Chlorine	·170
Sulphuric acid	·090
Nitric acid	·620
Phosphoric acid	·060
Silicic anhydride	2·785
Oxygen of silicates	·247
Carbonic acid	2·253

WATERS.

	Seine.	Rhine.	Garonne.
Carbonate of lime	11·609	9·511	4·524
Sulphate of lime	1·886	1·030	—
Carbonate of magnesia	·189	·350	·238
Sulphate of soda	—	·946	·371
Carbonate of soda	—	—	·455
Chloride of sodium	·862	·140	·224
Sulphate of potassa	·350	—	·533
Nitrate of potassa	—	2·660	—
Nitrate of soda	·659	—	—
Nitrate of magnesia	·364	—	—
Alumina	·035	·175	—
Oxide of iron	·175	·406	·217
Silicic acid	1·711	3·423	2·813
	17·840	18·641	9·375

WATER.

	Grains per Imperial Gallon.		
	Loire.	Rhone.	Douba.
Carbonate of lime	3·374	5·334	13·397
Carbonate of magnesia	·427	3·430	·161
Chloride of magnesium	—	—	·035
Sulphate of soda	·238	·519	·357
Carbonate of soda	1·023	—	—
Chloride of sodium	·336	·119	·161
Nitrate of potassa	—	·280	·287
Nitrate of soda	—	·315	·273
Earthy phosphates	—	·333	—
Alumina	·498	nil.	·147
Oxide of iron	·385	nil.	·210
Silicic acid	2·848	1·669	1·114
	9·129	11·999	16·142

WATER, Nile.

17·87 grains residue, consisting of

Organic matter	2·12
Oxides of iron and alumina, with traces of phosphoric acid	·07
Silicate of lime	1·85
Carbonate of lime	4·36
Carbonate of magnesia	2·81
Carbonate of potash	·66
Carbonate of soda	3·26
Chloride of sodium	2·30
Sulphate of potash	·93
Nitrate of potash	·18

WATER, Nile.

11·88 solid residue per imperial gallon.

Organic matter	1·54
Oxides of iron and alumina	1·04
Carbonate of lime	1·41
Silicate of lime	3·87
Sulphate of lime... ..	1·32
Chloride of sodium	·79
Carbonate of soda	·48
Nitrate of potash	·84
Carbonate of magnesia	1·15

WATER—River.

Grains per imperial gallon.

	Trent.	Dea.	Don.
Carbonate of lime	·32	·85	2·23
Sulphate of lime... ..	21·55	·12	·13
Nitrate of lime	—	—	—
Carbonate of magnesia	5·66	·36	1·07
Chloride of sodium	17·63	·72	1·26
Silica	·72	·14	·52
Iron and alumina	·50	·06	·27
Phosphate of lime	trace	trace	trace
Organic matter	3·68	1·64	3·06
	50·06	3·89	8·54

WATERS.

	South Esk.	Tweedale Burn.
Carbonate of lime	1·430	1·550
Carbonate of magnesia	·970	·640
Sulphate of lime... ..	·980	·420
Chloride of sodium	1·540	1·040
Silica and oxide of iron	·270	·360
Organic matter	·520	1·260
Total grains per gallon	5·710	5·270
Saline ammonia	·005	·002
Organic ammonia	·009	·005
Hardness before boiling	3·60°	3·60°
Hardness after boiling	3·10°	2·40°

WATERS.

	Grains per imperial gallon.	
	River Clyde.	River Severn.
Carbonate of lime	2·52	·50
Sulphate of lime... ..	·26	·52
Carbonate of magnesia	·72	nil.
Chloride of magnesium	·40	·66
Sulphate of soda... ..	1·94	·39
Chloride of sodium	·54	·73
Sulphate of potash	1·94	·39
Earthy phosphates	·31	·18
Alumina	·28	·32
Silicic acid	·28	·32
Organic matter	·89	·45
	10·08	4·46

WATER—Dunne Canal.

Sulphate of lime... ..	3·70
Chloride of sodium	4·10
Carbonate of lime	5·60
Carbonate of magnesia	3·97
Silica	·16
Iron, alumina and phosphates... ..	·95
Organic matter	2·10
	20·58

WATERS.	Loch Katrine.	St. Mary's Loch.	Portmore Loch.
Organic matter	·80	2·00	·92
Earthy carbonates	·35	·79	1·93
Sulphate of lime... ..	·64	·81	·45
Chloride of sodium	·79	·59	1·01
Nitrate of magnesia	trace	trace	trace
Silica, oxide of iron and alumina }	·10	·20	·23
Total grains per gallon ...	2·68	4·39	4·54
Hardness before boiling ...	1·3°	1·6°	2·4°
Hardness after boiling ...	1·0°	1·4°	2·0°
Free ammonia	·003	·005	·002
Organic ammonia	·010	·012	·004
Nitric acid	trace	trace	trace

WATER, Ben Rhydding, Yorkshire.

Carbonate of lime	}	merest
Carbonate of magnesia		traces
Chloride of sodium		·914
Chloride of magnesium		trace
Sulphate of lime... ..		2·295
Sulphate of soda		·511
Silicate of potash		1·315
Amount of grains per imperial gallon		5·035

WATERS.	Hawes- water Lake.	Ulls- water Lake.	Thirl- mere Lake.
Lime	·50	·81	·42
Magnesia	·18	·20	·14
Soda	·71	·51	·46
Chloride of sodium and potassium }	·40	·69	·77
Oxide of iron, silica	·25	·20	·05
Sulphuric acid	·51	·37	·44
Carbonic acid	·82	1·03	·56
Organic matter	·62	·35	·77
Total grains per gallon ...	3·99	4·16	3·61
Hardness before boiling ...	2·0°	2·1°	1·5°
Hardness after boiling ...	1·8°	2·1°	1·5°

WATERS of Surrey.

	Critch- mere.	Punch bowl.
Carbonate of lime	—	—
Sulphate of lime... ..	1·07	·590
Silicate of lime	—	1·000
Silicate of magnesia	—	·300
Carbonate of magnesia	traces	—
Chloride of sodium	·88	·740
Sulphate of soda	—	·040
Chloride of potassium	·26	—
Sulphate of potass	·03	·090
Silica	1·00	·100
Iron, alumina, &c.	—	·020
Organic matter	·90	1·300
Total fixed residue	4·14	4·180
Hardness	1·86°	2·45°

WATER, British Channel, Brighton.

	In 1000 grs.
Water	964·745
Chloride of sodium	27·059
Chloride of potassium	·766
Chloride of magnesium	3·666
Bromide of magnesium	·029
Sulphate of magnesia	2·296
Sulphate of calcium	1·406
Carbonate of lime	·033
Iodine and ammoniacal salts	—
	1000·000

WATER, Dead Sea.

Chloride of sodium	10·360
Chloride of calcium	3·920
Chloride of magnesium	10·246
Sulphate of lime	·054
Water	75·420
	100·000

WATERS.					English Channel.	Mediterranean.
Chloride of sodium	...	...	...	...	27·05948	27·22
Chloride of potassium	...	...	...	...	·76552	·01
Chloride of magnesium	...	...	...	...	3·66658	6·14
Bromide of magnesium	...	...	...	...	·02919	nil.
Sulphate of magnesia	...	...	...	...	2·29578	7·02
Sulphate of lime	...	...	...	...	1·40662	·15
Carbonate of lime	...	...	...	...	·03301	} 20
Carbonate of magnesia	...	...	...	...	—	
Water	...	...	...	...	964·74382	959·26
					1000·0000	1000·00

WATER, Irish Sea.										In grains per litre.
Chlorine	...	...	...	...	...	...	...	...	...	18·62650
Bromine	...	...	...	...	...	...	...	...	...	·06133
Sulphuric acid	...	...	...	...	...	...	...	...	...	2·59280
Lime	...	...	...	...	...	...	...	...	...	·57512
Calcium carbonate	...	...	...	...	...	...	...	...	...	·04754
Magnesia	...	...	...	...	...	...	...	...	...	2·03233
Alkaline chlorides	...	...	...	...	...	...	...	...	...	27·18363
Potassium	...	...	...	...	...	...	...	...	...	·39131
Sodium	...	...	...	...	...	...	...	...	...	10·40200
Ferric oxide	...	...	...	...	...	...	...	...	...	·00465
Ammonia	...	...	...	...	...	...	...	...	...	·00011
Nitric acid	...	...	...	...	...	...	...	...	...	·00156
Total solid contents	...	...	...	...	...	...	...	...	...	33·83855

WATER, St. Winnifred's Well, Holywell, N. Wales.										
Carbonate of lime	...	...	...	...	...	...	...	...	...	13·685
Carbonate of magnesia	...	...	...	...	...	...	...	...	...	2·688
Proto-carbonate of iron	...	...	...	...	...	...	...	...	...	traces
Sulphate of lime	...	...	...	...	...	...	...	...	...	5·202
Chloride of sodium	...	...	...	...	...	...	...	...	...	·851
Chloride of calcium	...	...	...	...	...	...	...	...	...	3·094
Carbonate of soda	...	...	...	...	...	...	...	...	...	1·432
Sulphate of magnesia	...	...	...	...	...	...	...	...	...	traces
Silicic acid	...	...	...	...	...	...	...	...	...	2·737
Total solids 30·450 per gallon	...	...	...	...	...	...	...	...	...	29·689

WATER, Malvern.

	St. Ann's Well.	Holy Well.
Alumina	—	traces
Carbonate of iron	·0331	·22470
Carbonate of lime	·4310	1·02480
Carbonate of magnesia	·4111	1·48400
Carbonate of soda	·2844	·93310
Chloride of magnesium	·1448	—
Chloride of sodium	·8768	·94570
Iodide of potassium	·0002	—
Iodide of sodium	—	·00029
Silicic acid	·2057	·19250
Sulphate of lime... ..	1·1521	1·65690
Sulphate of soda	·4382	·09660
Organic matter	—	traces
	3·9774	6·55859

WATERS, Bromine Spring, Tenbury, Worcestershire.

	Imp. gall.
Chloride of sodium	1301·4
Chloride of lime... ..	425·6
Chloride of magnesium	51·3
Sulphate of lime... ..	6·0
Proto-carbonate of iron	1·5
Bromide of sodium	16·2
Total saline contents... ..	1802·0

WATER, Saline, from Purton, N. Wilts.

Carbonate of lime	40·608
Carbonate of magnesia	2·104
Lime	25·760
Magnesia	38·060
Potash	5·544
Soda	76·360
Chloride of sodium	—
Chlorine	22·480
Sulphuric acid	191·200
Carbonic acid	—
Silica	2·240
Phosphoric acid	·248
Iodine	·075
Bromine	traces
Apocrenic acid	·896
Crenic acid	traces
Organic matter	—
Grains per imperial gallon	405·575

SPRING WATER, Bridgwater Brewery.

	In one gallon.
Chloride of magnesium	trace
Nitrate of magnesia	2·55
Chloride of sodium	1·60
Carbonate of lime and magnesia	14·40
Sulphate of lime... ..	1·60
Sulphate of magnesia	·64
Silica	2·24

WATERS.

	Burton. Allsopp's.	Leeds. Teltz's.
Carbonate of lime	15·51	19·78
Carbonate of magnesia	1·70	
Carbonate of protoxide of iron	·70	·93
Sulphate of lime... ..	18·96	4·97
Sulphate of potash	7·65	—
Sulphate of soda... ..	—	13·09
Sulphate of magnesia... ..	9·95	9·73
Chloride of sodium	10·12	7·11
Chloride of magnesium	—	4·74
Silica and loss	·79	1·72
Total grains per gallon	65·38	62·07

WATER, Leamington.

Muriate of soda	40·700
Sulphate of soda	40·398
Muriate of lime	20·561
Muriate of magnesia... ..	3·266

With carbonic acid, azote and oxygen.

WATER, Montpelier—Strong Sulphur Well.

Ammonia	trace
Carbonate of iron	trace
Carbonate of lime	24·182
Chloride of calcium	61·910
Chloride of magnesium	54·667
Chloride of potassium	5·750
Chloride of sodium	803·093
Silica	1·840
Sulphate of lime... ..	·594
Sulphide of sodium	14·414
Grains in one gallon	966·450

WATER, Mild Sulphur, Montpelier.

Ammonia, bromide of sodium, carbonate of iron...	traces
Carbonate of lime	20·457
Carbonate of magnesia	3·251
Chloride of magnesium	17·140
Chloride of potassium	3·975
Chloride of sodium	232·413
Silica	·165
Sulphate of lime... ..	12·104
Sulphide of sodium	3·398
Total grains in one gallon... ..	292·903

WATER, Starbeck Sulphur Spa.

Ammonia, bromide of sodium, carbonate of iron...	traces
Carbonate of lime	6·960
Carbonate of potash	12·207
Carbonate of soda	5·133
Chloride of sodium	121·798
Organic matter	1·740
Silica	1·753
Sulphate of lime... ..	·870
Sulphide of sodium	1·711
Total grains in one gallon... ..	157·562

WATER, Baden Baden.

	Grains per imp. gall.
Alumina	trace
Carbonate of iron	1·356
Carbonate of lime	14·184
Chloride of calcium	11·040
Chloride of potassium	13·720
Chloride of sodium	132·644
Organic matter	trace
Phosphate of lime	trace
Silicic acid	2·947
Sulphate of magnesia	5·236
	181·127

WATER, Warm Springs of Costa Rica.

	In 16 ozs.
Sulphate of potash	1·15
Sulphate of soda... ..	4·78
Chloride of sodium	7·55
Carbonate of lime	3·28
Carbonate of soda	1·11
Carbonate of magnesia	·86
Silica	·47
Loss	·54
Grains in 16 ounces of water	19·74

WATERS, Acidulous.

	Kilburn.
Carbonate of lime	2·40
Carbonate of magnesia	1·25
Carbonate of iron	·35
Sulphate of soda	18·20
Sulphate of lime... ..	13·00
Sulphate of magnesia	91·00
Chloride of sodium	6·00
Chloride of lime	·06
Chloride of magnesia	2·80
Resins	6·00

WATER, Apollinaris.

Carbonate of soda	12·57
Chloride of sodium	4·66
Sulphate of soda	3·00
Phosphate of soda	traces
Salts of potass	traces
Carbonate of magnesia	4·42
Carbonate of lime	·59
Oxide of iron and alumina	·20
Silicic acid	·08
Grains per gallon	25·52
Free and semi-combined carbonic acid	27·76
Combined carbonic acid	8·07

WATERS, Calcareous, nearly pure.

	Bath. In 15360 grs. of water.	Buxton. In 58309 grs. of water.	Bristol. In 58309 grs. of water.
Carbonate of lime	1·600	10·50	13·50
Carbonate of iron	·004	—	—
Sulphate of soda	3·000	—	11·20
Sulphate of lime	18·000	2·50	11·70
Chloride of sodium	6·600	1·50	4·00
Silica	·400	—	—
Chloride of magnesium	—	—	7·25

WATERS, Chalybeate.

	Tunbridge. In 103643 grs. of water.	Brighton. In 58309 grs. of water.
Carbonate of iron	1·00	—
Sulphate of lime	1·25	32·70
Chloride of sodium	·50	12·20
Chloride of magnesium	2·25	6·00
Sulphate of iron... ..	—	11·20
Silica	—	1·12

WATER, Chalybeate—Melrose.

Carbonate of iron	17·5
Alumina	1·8
Silica	8·5
Sulphate of magnesia	7·8
Chloride of calcium	16·0
Carbonate of lime	4·1
Alkaline chlorides	11·4
Grains per gallon	78·1

WATERS, Pure (from Granite).

Solid constituents	100·000 parts. 2·44
Organic matters... ..	1·57
Chlorine	·33
Sulphuric acid	·39
Magnesia	·25
Lime	·97
Hardness	1·27

WATERS, Pure.

						In 100,000 parts.	
						Clay slate.	Muschel chalk.
Solid constituents	...	...	...	...	...	8.80	32.50
Organic matter	..	...	...	...	...	.73	.90
Nitric acid	...	...	...	...	...	.05	.02
Chlorine	...	...	...	...	...	.25	.37
Sulphuric acid	...	...	...	...	...	2 to 4	1.37
Magnesia	...	...	...	...	...	.65	2.90
Lime	...	...	...	...	...	2.25	12.90
Hardness	...	...	..	...	...	3.15	16.95

WATERS, Siliceous.

						Kissengen.	Kreuznach.
Carbonate of iron	..	...	...	...	...	6.80	3.64
Carbonate of lime	...	...	...	...	...	35.50	6.13
Carbonate of manganese	...	...	...	...	...	trace	6.54
Carbonate of magnesia	...	...	...	...	...	25.00	4.73
Carbonate of soda	...	...	...	...	...	8.20	—
Sulphate of lime...	...	...	...	...	...	25.00	—
Sulphate of soda...	...	...	...	...	...	20.00	—
Phosphate of soda	...	...	...	..	...	1.70	—
Chloride of ammonium	...	...	...	...	...	.50	—
Chloride of calcium	...	...	...	...	...	—	25.61
Chloride of lithium	...	...	...	...	...	—	.56
Chloride of magnesium	...	...	...	...	...	68.50	6.79
Chloride of potassium	...	...	...	...	...	9.10	4.07
Chloride of sodium	...	...	...	...	...	620.50	596.65
Iodide of sodium	...	...	...	...	...	—	.44
Bromide of magnesium	...	...	...	...	...	7.00	66.02
Alumina	...	...	...	...	...	1.80	4.32
Silicic acid	...	...	...	...	...	22.50	.31
Glairine	...	...	...	...	...	5.30	14.72
Grains in one gallon	...	...	...	...	...	857.40	760.53

WATERS, Siliceous.

	Gastein.	Teplitz.	Wildbad.
Carbonate of iron	·22	·37	·20
Carbonate of lithia	—	1·82	—
Carbonate of lime	3·97	3·25	3·40
Carbonate of manganese ...	trace	·80	—
Carbonate of magnesia	·35	·53	·70
Carbonate of soda	6·90	26·84	5·30
Carbonate of strontia	trace	·19	—
Sulphate of potash	·55	4·34	·20
Sulphate of soda	14·95	—	4·00
Phosphate of alumina	—	·22	—
Phosphate of soda	—	trace	—
Chloride of potassium	—	1·04	—
Chloride of sodium	3·40	4·33	18·20
Iodide of sodium	—	·56	—
Flouride of sodium	—	1·30	—
Flouride of alumina	·50	—	—
Silicic acid	2·02	3·12	3·90
Glairine	trace	·90	—
Total grains in 1 gallon ...	25·96	49·61	35·90

WATERS, Siliceous.

	Carlsbad.	Ems.	Selters.
Carbonate of baryta	—	·030	—
Carbonate of iron	·27	·260	1·54
Carbonate of lime	23·70	11·400	18·86
Carbonate of manganese	·06	·030	—
Carbonate of magnesia	13·69	7·880	15·95
Carbonate of soda	96·95	107·500	58·55
Carbonate of strontia	·07	·100	trace
Sulphate of potash	—	5·400	—
Sulphate of soda	198·69	—	2·48
Phosphate of alumina	·02	·018	—
Phosphate of lime	·01	—	—
Phosphate of soda	—	—	2·81
Chloride of potassium	—	·450	3·58
Chloride of sodium	79·75	76·340	162·85
Flouride of calcium	·24	·019	—
Silicic acid	5·77	4·140	2·89
Total grains per gallon ...	419·22	213·567	269·32

SOILS.

SHEBAH, Egyptian nitre earth.

Organic matter	...	...	...	...	...	...	...	5.25
Oxide of iron	...	...	...	...	...	...	...	5.31
Alumina	...	...	...	...	...	...	...	7.86
Sulphate of lime...	...	...	...	...	...	...	...	1.05
Phosphate of lime	...	...	...	...	...	...	...	.46
Carbonate of lime	...	...	...	...	...	...	...	3.06
Magnesia	...	...	...	...	...	...	...	1.60
Nitrate of potash	...	..	...	...	...	...	...	1.01
Chloride of sodium	...	...	...	...	...	...	...	1.42
Soda	...	...	...	...	...	...	...	.16
Potash	...	...	...	...	...	...	...	.79
Clay and sand	...	...	...	...	...	...	...	72.03
								100.00

SOIL, reclaimed from Haarlem Lake, Holland.

Dried at 212° Fahrenheit.

Organic matter and water of combination	...	...	...	...	...	...	...	14.71
Oxides of iron and alumina	...	...	...	...	...	...	...	9.27
Ferrous sulphate (green vitriol)	...	...	...	...	...	...	...	.74
Bisulphide of iron	...	...	...	...	...	...	...	.71
Sulphuric acid, united with oxide of iron as basic sulphate of iron	...	...	...	...	...	...	...	1.08
Sulphate of lime...	...	...	...	...	...	...	...	1.72
Magnesia	...	...	...	...	...	...	...	.73
Phosphoric acid	...	...	...	...	...	...	...	.27
Potash	...	...	...	...	...	...	...	.53
Soda	...	...	...	...	...	...	...	.32
Chloride of sodium	...	...	...	...	...	...	...	.09
Insoluble matter...	...	...	...	...	...	...	...	69.83
								100.00
Ammonia	...	...	...	...	...	...	...	.62

SOIL, of Tanah (Lower Egypt).

	Recent.	Ancient.
Organic matter	9·915	4·308
Clay, silica, oxide of iron, phos- phates of iron and magnesia }	84·093	89·605
Chloride of sodium	5·147	4·520
Calcium sulphate	·015	·129
Nitric acid of nitrates	·171	·949
Ammonia ready formed	·039	·365
Nitrogen of the organic matter ...	·620	·124
	100·000	100·000
Total Nitrogen	·696	·670

SOILS, Fertile Sandy Loam.

Moisture	2·95
Organic matter and water of combination	6·75
Oxides of iron and alumina	6·10
Carbonate of lime	1·22
Alkalies and magnesia	1·20
Sand and clay	82·22
	100·44

SOIL. Sandy, Growing luxuriant pulse crops.

Silica and quartz sand	90·221
Alumina	2·106
Oxide of iron	3·951
Oxide of manganese	·960
Lime	·539
Magnesia	·730
Potash	·066
Soda	·010
Phosphoric acid	·367
Sulphuric acid	trace
Chlorine	·010
Organic matter	1·040
	100·000

SOILS. Sandy. Fertile.—Brunswick.

Silica and quartz sand	...	...	...	...	...	...	94.70
Alumina	...	...	...	...	...	...	1.60
Oxides of iron	...	...	...	...	...	...	2.00
Oxide of manganese	...	...	...	...	...	...	—
Lime	...	...	...	...	...	...	1.00
Magnesia	...	...	...	...	...	...	trace
Potash	...	...	...	...	...	...	} .10
Soda	...	...	...	...	...	...	
Phosphoric acid	...	...	...	...	...	...	trace
Sulphuric acid	...	...	...	...	...	...	trace
Chlorine	...	...	...	...	...	...	trace
Organic matter	...	...	...	...	...	...	.50
							100.00

SOILS. Sandy, Barren—near Lunenburg.

Silica and quartz sand	...	...	...	...	...	...	96.000
Alumina	...	...	...	...	...	...	.500
Oxides of iron	...	...	...	...	...	...	2.000
Oxide of manganese	...	...	...	...	...	...	trace
Lime	...	...	...	...	...	...	.001
Magnesia	...	...	...	...	...	...	trace
Potash	...	...	...	...	...	...	trace
Soda	...	...	...	...	...	...	trace
Phosphoric acid	...	...	...	...	...	...	trace
Sulphuric acid	...	...	...	...	...	...	trace
Chlorine	...	...	...	...	...	...	—
Organic matter	...	...	...	...	...	...	1.499
							100.000

SOIL. Calcareous Clay.

Moisture	...	...	...	...	...	...	1.51
Organic matter and water of combination	...	...	...	...	...	...	11.08
Oxides of iron and alumina	...	...	...	...	...	...	14.25
Carbonate of lime	...	...	...	...	...	...	10.82
Magnesia	...	...	...	...	...	...	.71
Potash	...	...	...	...	...	...	.51
Soda	...	...	...	...	...	...	.32
Phosphoric acid	...	...	...	...	...	...	.05
Sand and clay	...	...	...	...	...	...	.10
							60.65
							100.00

SOILS. Calcareous—Gloucestershire.

Lime	...	...	...	...	...	...	...	...	52·33
Magnesia	...	...	...	...	...	...	...	...	·31
Oxide of iron and alumina	...	...	...	...	...	...	...	...	2·86
Phosphoric acid	...	...	...	...	...	...	...	...	trace
Sulphuric acid	...	...	...	...	...	...	...	...	trace
Silica	...	...	...	...	...	...	...	...	·26
Carbonic acid	...	...	...	...	...	...	...	...	44·70
									100·46

SOIL. Calcareous.

Moisture	...	...	...	...	...	...	...	...	3·62
Organic matter	...	...	...	...	...	...	...	...	4·23
Carbonate of lime	...	...	...	...	...	...	...	...	67·50
Oxide of iron and alumina	...	...	...	...	...	...	...	...	7·54
Magnesia	...	...	...	...	...	...	...	...	·44
Potash and soda	...	...	...	...	...	...	...	...	·79
Insoluble siliceous matter	...	...	...	...	...	...	...	...	15·88
									100·00

SOIL. Clay.

Moisture	...	...	...	...	...	...	...	...	3·91
Organic matter	...	...	...	...	...	...	...	...	4·80
Oxide of iron and alumina	...	...	...	...	...	...	...	...	7·85
Phosphoric acid	...	...	...	...	...	...	...	...	·04
Carbonate of lime	...	...	...	...	...	...	...	...	2·08
Sulphate of lime	...	...	...	...	...	...	...	...	·15
Magnesia	...	...	...	...	...	...	...	}	·32
Alkalies and loss	...	...	...	...	...	...	...		
Insoluble siliceous matter	...	...	...	...	...	...	...	...	80·85
									100·00

SOIL. Peaty Sterile.

Silica and sand	...	...	...	...	...	...	...	...	7·96
Alumina	...	...	...	...	...	...	...	...	·63
Oxide of iron	...	...	...	...	...	...	...	...	·12
Lime	...	...	...	...	...	...	...	...	·55
Magnesia	...	...	...	...	...	...	...	...	·08
Potash	...	...	...	...	...	...	...	}	·01
Soda	...	...	...	...	...	...	...		
Phosphoric acid	...	...	...	...	...	...	...	...	·02
Sulphuric acid	...	...	...	...	...	...	...	...	·19
Chlorine	...	...	...	...	...	...	...	...	
Organic matter	...	...	...	...	...	...	...	...	90·44
									100·00

SOIL. Loamy, fine wheat land.

Silica	63·19
Peroxide of iron...	4·87
Alumina	14·04
Lime	·83
Magnesia	1·02
Potash	2·80
Soda	1·43
Sulphuric acid	·09
Phosphoric acid	·24
Organic matter	8·55
Water	2·94
	100·00

**SOILS. Vegetable moulds, boggy and sterile.
(Germany.)**

Organic matter and water of combination	...	...	90·44	
Potash	...	...	}	·01
Soda	...	...		
Ammonia	...	...		trace
Lime	...	...		·55
Magnesia	...	...		·08
Peroxide of iron...	...	...	}	·12
Protoxide of iron	...	...		
Alumina	...	...		·63
Phosphoric acid	...	...		·02
Sulphuric acid	...	...		·19
Chlorine	...	...		trace
Soluble and insoluble silica	...	...		7·96
				100·00

SOIL. Pasture land.

Moisture	2·420
Organic matter	11·700
Oxides of iron and alumina	11·860
Carbonate of lime	1·240
Sulphate of lime... ..	·306
Phosphoric acid	·080
Sulphuric acid	
Chloride of sodium	·112
Potash	·910
Soluble silica	4·090
Insoluble silica	67·530
	100·248

SOILS. Fertile vegetable moulds.

Organic matter and combined water	...	...	...	...	...	...	...	...	12·502
Potash	...	...	...	...	...	...	...	...	1·430
Soda	...	...	...	...	...	...	...	...	2·069
Ammonia	...	...	...	...	...	...	...	...	·078
Lime	...	...	...	...	...	...	...	...	5·096
Magnesia	...	...	...	...	...	...	...	...	·140
Peroxide of iron	...	...	...	...	...	...	...	...	10·305
Protoxide of iron	...	...	...	...	...	...	...	...	·563
Protoxide of manganese	...	...	...	...	...	...	...	...	·354
Alumina	...	...	...	...	...	...	...	...	2·576
Phosphoric acid	...	...	...	...	...	...	...	...	·324
Sulphuric acid	...	...	...	...	...	...	...	...	1·104
Carbonic acid	...	...	...	...	...	...	...	...	6·940
Chlorine	...	...	...	...	...	...	...	...	1·382
Soluble silica	...	...	...	...	...	...	...	...	2·496
Insoluble silicates	...	...	...	...	...	...	...	...	51·706
Loss	...	...	...	...	...	...	...	...	·935
									100·000

SOILS. Suitable for growth of lupines. Oxon.

Moisture	...	...	...	...	...	...	...	...	·96
*Organic matter	...	...	...	...	...	...	...	...	1·46
Oxide of iron and alumina	...	...	...	...	...	...	...	...	1·84
Phosphoric acid	...	...	...	...	...	...	...	...	·17
Carbonate of lime	...	...	...	...	...	...	...	...	·23
Sulphate of lime	...	...	...	...	...	...	...	...	·04
Magnesia	...	...	...	...	...	...	...	...	·24
Potash	...	...	...	...	...	...	...	...	·12
Chloride of sodium	...	...	...	...	...	...	...	...	traces
Fine quartz sand	...	...	...	...	...	...	...	...	95·01
									100·07
*Containing nitrogen...	...	...	...	...	...	...	...	...	·075
Equal to ammonia	...	...	...	...	...	...	...	...	·091

SOIL. Marly.

Moisture	4.72
Organic matter	11.03
Oxide of iron	9.98
Alumina	6.06
Carbonate of lime	12.10
Sulphate of lime	.75
Magnesia and alkalies	1.43
Soluble silica	17.93
Insoluble silica	36.00
	100.00

SOILS. Marly. Gloucestershire.

Organic matter and water of combination	10.50
Oxide of iron and alumina	11.92
Carbonate of lime	19.92
Carbonate of magnesia	.25
Potash	.62
Soda	.09
Phosphoric acid	.38
Sulphuric acid	.04
Soluble silica	13.45
Insoluble silicates and sand	42.07
Loss	.76
	100.00

SOILS. Clay. Cirencester.

	No. 1.	No. 2.
Water driven off at 212° Fah.	5.539	
Organic matter and water of combination	3.621	3.38
Oxides of iron	3.070	8.82
Alumina		6.67
Carbonate of lime	.740	
Lime		1.44
Magnesia	.605	.92
Potash	.269	1.48
Soda	.220	1.08
Phosphoric acid	.386	.51
Soluble silica	1.450	72.83
Insoluble silicates	84.100	
Chlorine and sulphuric acid	traces	traces
Carbonic acid and loss	traces	2.87
	100.000	100.00

TEA PLANTATION, Soils of

	No. 1.	No. 2.
Moisture	4·543	5·325
*Organic and volatile matters	4·920	4·745
Sand and insoluble substances	76·144	74·660
Soda	·278	·175
Potash	·247	·265
Magnesia	·176	·258
Lime	·092	·141
Oxide of iron manganese	8·208	7·410
Alumina	4·451	5·940
Phosphoric acid	·124	·160
Sulphuric acid	·163	·129
Carbonic acid	trace	trace
Chlorine	·062	·210
*Nitrogen	99·408	99·418
	·438	·134

MANURES.

AMMONIA. Sulphate of

Moisture	...	...	...	...	...	...	...	...	6.59
Sulphate of ammonia	...	...	...	...	...	...	...	...	91.94
Mineral impurities	...	...	...	...	...	...	...	...	1.47
									100.00

AMMONIA. Ulmate of

Moisture	...	...	...	...	...	...	...	...	11.59
Organic matter and ammoniacal salts	...	...	...	...	...	...	...	...	75.94
Oxides of iron, alumina, &c.	...	...	...	...	...	...	...	...	2.52
Alkalies and magnesia	...	...	...	...	...	...	...	...	1.26
Sand	...	...	...	...	...	...	...	...	6.47
Carbonate of lime	...	...	...	...	...	...	...	...	2.22
									100.00

BONES.

	No. 1.	No. 2.	No. 3.
Moisture	12·67	12·02	12·31
*Organic matter	30·12	28·71	30·73
Phosphate of lime and magnesia	48·14	49·28	49·72
Carbonate of lime	6·99	4·37	4·25
Alkaline salts	1·91	4·55	2·78
Sand	·17	1·07	·21
	100·00	100·00	100·00
*Containing nitrogen... ..		3·44	3·73

BONES, Boiled.

	No. 1.	No. 2.
Moisture	8·06	7·70
*Organic matter	25·45	25·27
Phosphate of lime and magnesia	60·48	43·78
Carbonate of lime	3·25	9·77
Alkaline salts	·43	
Sand	2·33	13·53
	100·00	100·00
*Ammonia	2·24	3·37

BONE DUST.

	No. 1.	No. 2.
Moisture	10·36	12·06
*Organic matter	30·92	29·12
Phosphates of lime and magnesia	52·44	49·54
Carbonate of lime	5·16	6·99
Alkaline salts	·84	1·91
Sand	·28	·38
	100·00	100·00
*Containing nitrogen... ..	3·51	3·69
Equal to ammonia	4·56	4·49

BONE SHAVINGS.

Moisture	13·12
*Organic matter	26·12
Phosphates	53·74
Carbonate of lime	5·39
Alkaline salts	·78
Sand	·85
	100·00
*Containing ammonia	3·98

BONE DUST (Rotten).

	No. 1.	No. 2.
Moisture	21·55	12·02
*Organic matter	18·52	28·71
Phosphates of lime and magnesia	39·24	49·28
Carbonate of lime and salt	19·14	8·92
Sand	1·55	1·07
	100·00	100·00
*Containing nitrogen... ..	1·82	3·47
Equal to ammonia	2·21	4·14

BONE ASH.						Pure from Shank Bone of Horse.	From Ox Bone.
*Phosphoric acid	...	...	...	...	...	40·29	39·81
Lime	...	...	...	...	...	55·01	55·43
Magnesia	...	...	...	...	...	·84	·80
Potash	...	...	...	...	...	·25	·49
Soda	...	...	...	...	...	·03	·60
Carbonic acid	...	...	...	...	...	2·99	3·52
Sulphuric acid	...	...	...	...	...	traces	·04
Chlorine	...	...	...	...	...		·06
						99·41	100·75
*Equal to bone earth...	...	...	...	...	...	87·29	86·25

BONE PHOSPHATES (precipitated).

Moisture and water of combination	...	...	...	...	...	30·20
Phosphoric acid	...	...	...	...	...	23·83
Lime	...	...	...	...	...	34·52
Magnesia, chlorine, &c.	...	...	...	...	...	9·92
Sand	...	...	...	...	...	1·53
						100·00

BONE BLACK. From Sugar Refineries.

	No. 1.	No. 2.	No. 3.
Carbon nitrogenous	9·74	10·60	12·86
Calcic phosphate	82·80	83·20	81·80
Calcic carbonate	5·92	4·15	2·92
Calcic sulphate	·67	·64	·42
Ferric oxide	·33	·55	·67
Siliceous matters	·54	·86	1·33
	100·00	100·00	100·00
	No. 4.	No. 5.	No. 6.
Carbon nitrogenous	19·64	7·42	10·64
Calcic phosphate	73·20	87·08	80·56
Calcic carbonate	3·18	1·92	4·52
Calcic sulphate	1·12	·95	2·24
Ferric oxide	·66	·85	·72
Siliceous matters	2·20	1·78	1·32
	100·00	100·00	100·00

IVORY DUST.

Moisture	13·12
*Organic matter	26·12
Phosphates of lime and magnesia	53·74
Carbonate of lime	5·39
Alkaline salts	·78
Sulphate of lime... ..	—
Sand	·85
	100·00
*Containing nitrogen... ..	3·28
Equal to ammonia	3·98

COPROLITES. French, Boulogne.

	No. 1.	No. 2.	No. 3.
Moisture		1·15	} 3·38
Water of combination ... }	3·86	1·70	
*Phosphoric acid	19·82	21·15	20·51
Lime	30·52	33·71	32·67
Oxides of iron and alumina ...	19·10	16·93	20·04
Insoluble matter... ..	26·70	25·36	23·40
	100·00	100·00	100·00
*Equal to tribasic phosphate } of lime }	43·28	44·94	44·77

COPROLITES. Found near Bath.

Insoluble siliceous matter	6·15
Moisture	2·33
Organic matter and water of combination	9·87
Phosphates of lime and magnesia	51·51
Carbonate of lime	25·23
Carbonate of magnesia	1·99
Alkalies and loss	2·92
	100·00

COPROLITES. Suffolk or Pseudo.

	No. 1.	No. 2.
Moisture and water of combination, } with a trace of organic matter }	5.76	2.53
Lime	40.70	38.20
Magnesia	.34	1.34
*Phosphoric acid	28.34	24.24
Oxide of iron	4.87 }	4.81
Alumina		3.72
Carbonic acid	5.08	5.37
Sulphuric acid	.87	1.40
Potash	.78	.56
Soda	.25	1.18
Chlorine	traces	.07
Flourine and loss	3.00	4.31
Insoluble siliceous matter... ..	10.01	12.27
	100.00	100.00
*Equal to bone earth... ..	61.30	52.52

COPROLITES. Cambridge.

	No. 1.	No. 2.
Moisture and organic matter	4.01	4.63
Lime	45.39	43.21
Magnesia	.48	1.12
Oxide of iron	1.87	2.46
Alumina	2.57	1.36
*Phosphoric acid	26.75	25.29
Carbonic acid	5.13	6.66
Sulphuric acid	1.06	.76
Chloride of sodium	traces	.09
Potash	.84	.32
Soda	.73	.50
Insoluble siliceous matter... ..	6.22	8.64
Flourine and loss	4.95	4.96
	100.00	100.00
*Equal to bone earth... ..	57.12	54.89

COPROLITES. Bedfordshire.

Moisture and water of combination	...	...	...	3.35
*Phosphoric acid	...	...	...	23.47
Lime	...	...	...	36.29
Oxide of iron	...	...	...	5.39
Alumina, magnesia and flourine	...	...	...	7.24
†Carbonic acid	...	...	...	3.45
Insoluble matters	...	...	...	20.81
				100.00
*Equal to tribasic phosphate of lime	...	...	...	51.24
†Equal to carbonate of lime	...	...	...	7.84

COPROLITES. Russian.

Moisture and water of combination	...	...	...	3.55
*Phosphoric acid	...	...	...	22.42
Lime	...	...	...	33.84
Oxide of iron, alumina, flourine, &c.	...	...	...	9.94
Insoluble siliceous matters	...	...	...	30.25
				100.00
*Equal to tribasic phosphate of lime	...	...	...	48.94

DUNG OF NIGHTINGALES.

Sal ammoniac	...	...	...	20
Urate of ammonia with potass	...	...	...	52.70
Phosphate of ammonia with potass	...	...	...	80
Sulphate of potash	...	...	...	3.30
Phosphate of ammonia and magnesia	...	...	...	20
Chloride of sodium	...	...	...	80
Phosphate of lime	...	...	...	4.30
Water, ammonia and organic matter	...	...	...	37.70
				100.00

MANURE. Detailed Composition.

Water	66·17
Soluble organic matter	2·48
Soluble inorganic matter (ash) containing:—	
Soluble silica	·237
Phosphate of lime	·299
Lime	·066
Magnesia	·011
Potash	·573
Soda	·051
Chloride of sodium	·030
Sulphuric acid	·055
Carbonic acid and loss	·218
	1·54
Insoluble organic matter	25·76
Insoluble inorganic matter (ash) containing:—	
Soluble silica	·967
Insoluble silica	·561
Oxide of iron and alumina, with phosphates	·596
Containing phosphoric acid	(·178)
Equal to bone earth	(·386)
Lime	1·120
Magnesia	·143
Potash	·099
Soda	·019
Sulphuric acid... ..	·061
Carbonic acid and loss	·484
	4·05
Total percentage... ..	
	100·00

STABLE MANURE, Fresh.

Water	64·96
Organic matters	24·71
Mineral matters (ash)	10·33
	100·00

MANURE, Rotten Dung in Natural State.

(Detailed Composition.)

Water	75.42
*Soluble organic matter	3.71
Soluble inorganic matter consists of—	
Soluble silica	.254
Phosphate of lime	.382
Lime	.117
Magnesia	.047
Potash	.446
Soda	.023
Chloride of sodium... ..	.037
Sulphuric acid	.058
Carbonic acid and loss	.106
	1.47
†Insoluble organic matter	12.82
Insoluble inorganic matter (ash) soluble silica	1.424
Insoluble silica	1.010
Oxides of iron and alumina with phosphates	.947
Containing phosphoric acid	(.274)
Equal to bone earth	(.573)
Lime	1.667
Magnesia	.091
Potash	.045
Soda	.038
Sulphuric acid	.063
Carbonic acid and loss	1.295
	6.58
	100.00
* Containing nitrogen	.297
† Containing nitrogen.	.309

HORSE DUNG, Ash of.

Phosphate of lime	5.00
Carbonate of lime	18.75
Phosphate of magnesia	36.25
Silica	40.00
	100.00

HORSE DUNG, Ash of.

(Detailed Composition.)

Silica	...	...	...	...	...	...	...	...	62.40
Potash	...	...	...	...	...	...	...	...	11.30
Soda	...	...	...	...	...	...	...	...	1.98
Oxide of iron	...	...	...	...	...	...	...	...	1.17
Lime	...	...	...	...	...	...	...	...	4.63
Magnesia	...	...	...	...	...	...	...	...	3.84
Oxide of manganese	...	...	...	...	...	...	...	...	2.13
Phosphoric acid	...	...	...	...	...	...	...	...	10.49
Sulphuric acid	...	...	...	...	...	...	...	...	1.89
Chlorine	...	...	...	...	...	...	...	...	.03
Loss	...	...	...	...	...	...	...	...	.14
									100.00

STABLE MANURE, Ash of.

Soluble in water.	{	Potash	3.22
		Soda	2.73
		Lime	.34
		Magnesia	.26
		Sulphuric acid	3.27
		Chlorine	3.15
		Silica	.04
Soluble in Hydro- chloric Acid.	{	Silica (insoluble)	27.01
		Phosphate of lime	7.11
		Phosphate of magnesia	2.26
		Phosphate of peroxide of iron	4.68
		Carbonate of lime	9.34
		Carbonate of magnesia	1.63
Sand 30.99, Carbon .83 and loss 3.14		34.96	
			100.00
+Insoluble matter			12.82
*Insoluble inorganic matter (ash)—			
Soluble silica			1.424
Insoluble silica			1.010

MANURE, Farm Yard, Scotch mixed.

Water	72·48
Organic matter	13·94
Potash	·32
Soda	·16
Lime	·59
Magnesia	·02
Phosphoric acid... ..	·31
Sulphuric acid	·12
Carbonic acid	·52
Ferric oxide and alumina	·45
Sand	11·09
	100·00
Nitrogen	·38

MANURE, mixed long fresh Dung in natural state.**(General Composition.)**

Water	66·17
*Soluble organic matter	2·48
Soluble inorganic matter	1·54
†Insoluble organic matter	25·76
Insoluble inorganic matter	4·05
	100·00
* Containing nitrogen	·149
Equal to ammonia	·181
†Containing nitrogen	·494
Equal to ammonia	·599

COW DUNG, Ash of.

Phosphate of lime	10·90
Phosphate of magnesia	10·00
Peroxide of iron	8·50
Lime	1·50
Sulphate of lime (gypsum)	3·10
Chloride of potassium	traces
Silica	63·70
Loss	2·30
	100·00

Earth Closet Manure, used five times not dried.

Moisture	12.97
*Organic matter and water of combination	7.78
Oxide of iron and alumina	9.24
Bone phosphate	1.05
Carbonate of lime	9.19
Magnesia	2.57
Potash	.66
Chloride of sodium	.64
Insoluble siliceous matter	55.90

100.00

*Containing nitrogen	.41
Equal to ammonia	.49

Earth Closet Manure, used four times and dried.

Moisture	1.49
*Organic matter and water of combination	6.56
Oxide of iron and alumina	14.57
Bone phosphate	1.46
Carbonate of lime	9.47
Magnesia	2.20
Potash	1.31
Chloride of sodium	.82
Insoluble siliceous matter	62.12

100.00

*Containing nitrogen	.39
Equal to ammonia	.47

NIGHT SOIL. Goux's plan.

Water	31.16
*Organic matter	23.20
Oxide of iron and alumina	12.31
Phosphate of lime	1.31
Sulphate and carbonate of lime	5.04
Magnesia and alkalies	3.19
Insoluble matters	23.79

100.00

*Containing nitrogen	.94
Equal to ammonia	1.14

Earth Closet Manure.	West Riding Prison, Wakefield.		
	Earth once used.	Earth twice used.	Earth thrice used.
Moisture	21·69	11·81	13·81
*Organic matter and water } of combination	7·67	10·17	10·53
Oxide of iron and alumina ...	12·65	12·43	10·76
Phosphoric acid	·19	·39	·44
Carbonate of lime	1·76	1·88	1·84
Magnesia	·06	·68	·78
Alkalies and loss	2·06	·64	·64
Sand and clay	53·98	62·00	61·20
	100·00	100·00	100·00
*Containing nitrogen	·29	·37	·44
Equal to ammonia	·35	·45	·53

HUMAN FÆCES, DRIED.—No. 1.

	Ash.	Dried excrement.
Organic matter		88·52
Insoluble matter	12·79	1·48
Oxide of iron	4·66	·54
Lime	14·98	1·72
Magnesia	13·48	1·55
Phosphoric acid	37·17	4·27
Sulphuric acid	2·10	·24
Potash	10·40	1·19
Soda	2·83	·31
Chloride of sodium	1·59	·18
	100·00	100·00
Nitrogen	...	5·00

HUMAN FÆCES. Dried.—No. 2.

*Organic matter	88.52
Insoluble siliceous matter	1.48
Oxide of iron	.54
Lime	1.72
Magnesia	1.55
Phosphoric acid	4.27
Sulphuric acid	.24
Potash	1.19
Soda	.31
Chloride of sodium	.18

100.00

*Containing nitrogen	6.00
Equal to ammonia	7.28

HUMAN FÆCES.—No. 3.

Water	75.00
*Organic matter	22.13
Insoluble siliceous matter	.37
Oxide of iron	.13
Lime	.43
Magnesia	.38
Phosphoric acid	1.07
Sulphuric acid	.06
Potash	.30
Soda	.08
Chloride of sodium	.05

100.00

*Containing nitrogen	1.50
Equal to ammonia	1.82

HUMAN FÆCES.—No. 4.

Organic matter	...	...	...	...	...	...	850
Phosphate of lime	...	...	...	...	...	}	100
„ of magnesia	...	...	...	...	...		
Sulphate of lime	...	...	...	...	...	}	traces.
„ of soda	...	...	...	...	...		
„ of potash	...	...	...	...	...		
Phosphate of soda	...	...	...	...	...	}	8
Carbonate of soda	...	...	...	...	...		
Silica	...	...	...	...	...		16
Loss and carbonaceous residue	...	...	...	...	...		18

1000

GUANOS.

GUANO. Guanape Island.

	No. 1.	No. 2.
Moisture	17.79	20.10
*Organic matter and ammoniacal salts ...	42.62	38.67
Phosphate of lime and magnesia	25.45	32.53
†Alkaline salts	11.92	5.97
Sand	2.22	2.73
	100.00	100.00
*Containing nitrogen	10.04	7.87
Equal to ammonia	19.19	8.95
†Containing soluble phosphoric acid ...	4.75	3.19

GUANO. Pacquico.

Water	9.54
Organic matter	30.54
Phosphates	18.43
Sulphate of lime	.93
Alkaline salts	34.58
Sand	5.98
Ammonia	6.51

GUANO. Native. A B. C. Process.

	No. 1.	No. 2.
Water	7.91	6.12
*Organic matter... ..	19.40	22.45
Bone earth	2.40	2.81
Carbonate of lime	20.93	6.37
Magnesia and alkalis	2.92	3.56
Oxides of iron and alumina	9.78	6.59
Clay and sand	37.66	52.10
	101.00	100.00
*Containing nitrogen	.96	1.92
Equal to ammonia	1.16	2.23

GUANOS. Ballestas Islands.

	1.	2.	3.	4.
Moisture	18·04	18·06	19·19	17·01
*Organic matter and ammonia salts ... }	49·22	46·81	48·19	50·35
Phosphates	22·18	23·20	20·69	22·09
†Alkalies	8·40	9·49	9·40	9·20
Silica	2·16	2·44	2·53	1·35
	<u>100·00</u>	<u>100·00</u>	<u>100·00</u>	<u>100·00</u>
*Containing nitrogen ...	12·91	12·27	13·60	13·26
Equal to ammonia ...	15·67	14·89	16·51	16·10
†Containing phosphoric acid	2·82	2·70	2·47	2·74
Equal to tribasic phosphate of lime ... }	6·16	5·89	5·39	5·98

GUANO. Egyptian.

	1.	2.
Moisture	17·19	15·06
*Organic matter and salts of ammonia ...	39·50	39·30
Bone earth	18·28	19·89
Sulphate of lime	2·76	3·15
Alkaline salts	20·93	20·39
Insoluble siliceous matter	1·34	2·21
	<u>100·00</u>	<u>100·00</u>
*Containing nitrogen	11·81	10·93
Equal to ammonia	13·97	13·27

GUANO.

Ichaboe. Saldanah Bay. Patagonian. Bolivian.

	Ichaboe.	Saldanah Bay.	Patagonian.	Bolivian.
Moisture	27·3	20·0	25·0	10·0
Organic matter and amoniacal salts ... }	34·3	14·9	18·3	21·7
Phosphates	30·3	56·4	44·0	51·5
Alkaline salts	5·0	5·8	2·1	14·1
Carbonate of lime	—	—	—	—
Sand	3·1	2·9	10·6	2·7
	<u>100·0</u>	<u>100·0</u>	<u>100·0</u>	<u>100·0</u>

GUANO. Adulterated.

	1.	2.
Water	5.33	8.28
Organic matter	3.52	13.11
Oxide of iron and alumina	—	3.59
Phosphate of lime	18.10	2.35
Sulphate of lime	—	15.17
Carbonate of lime	69.75	8.00
Chloride of sodium	1.75	15.80
Sand	—	34.29
Magnesia	1.35	—
Loss	.20	—
	100.00	100.50
Containing nitrogen	.19	.52
Equal to ammonia	.23	.64

GUANOS. Good

	1.	2.
Water	12.42	12.00
Organic matter and ammoniacal salts ...	52.98	59.11
Bone earth	25.06	19.31
Alkaline salts, chiefly chlorides of } potassium and sodium	8.26	8.13
Gypsum	—	—
Insoluble matters (sand)	1.50	1.45
	100.22	100.00
Yielding ammonia	17.21	19.30

GUANO. Kooria Moorla.

	No. 1.	No. 2.
Moisture	5.94	9.63
Organic matter	8.49	5.68
Phosphate of lime and magnesia	46.39	53.93
Sulphate of lime	11.73	4.37
Alkaline salts	5.12	6.48
Insoluble siliceous matter	22.33	19.91
	100.00	100.00
Containing nitrogen	.30	.33

GUANO. Peruvian.

Moisture	...	...	...	...	...	...	15.14
*Organic matter and salts of ammonia	...	...	...	...	...	...	52.81
Bone earth	...	...	...	...	...	...	20.26
†Alkaline salts	...	...	...	...	...	...	10.52
Insoluble siliceous matter	...	...	...	...	...	...	1.27
							100.00
*Containing nitrogen	...	...	...	...	...	...	15.41
Equal to ammonia	...	...	...	...	...	...	18.56
†Containing phosphoric acid	...	...	...	...	...	...	2.48
Equal to bone earth	...	...	...	...	...	...	5.36

GUANO. Punta de Lobos.

	1.	2.	3.
Moisture	14.53	14.06	4.79
*Organic matter and ammonia } salts	35.77	49.74	17.14
Phosphate of lime	26.50	21.40	23.09
†Alkaline salts	20.35	13.45	27.04
Insoluble matters	2.85	1.35	27.94
	100.00	100.00	100.00
*Containing nitrogen	6.55	9.99	2.64
Equal to ammonia	7.95	12.13	3.21
†Containing phosphoric acid	3.20	1.21	.38
Equal to phosphate of lime	6.98	2.64	.84
Total phosphoric acid	15.34	11.01	10.95

GUANOS. Papillon de Pica.

	1.	2.	3.
Moisture	4.13	3.20	5.45
Organic matter and ammonia- } cal salts	59.01	46.17	49.40
Earthy phosphates	21.82	25.51	27.01
Alkaline salts	9.00	15.49	15.99
Sand	6.04	9.63	2.15
Phosphoric acid	11.67	13.49	14.06
Nitrogen	15.08	9.81	9.15
Nitric acid	.04	.01	.51

GUANO. Huanillos.

	1.	2.
Moisture	8.23	5.25
Organic matter and ammoniacal salts ...	46.46	41.90
Phosphates	22.45	30.21
Alkalies	19.22	16.73
Sand	3.64	5.91
Phosphoric acid	15.62	15.30
Nitrogen	10.40	7.45
Nitric acid	2.87	2.46

GUANO. Malden Island.

Iron oxide	26
Potash	28
Soda	1.71
Magnesia	1.86
Lime	43.51
Phosphoric acid	37.58
Sulphuric acid	22
Carbonic acid	2.61
Chlorine	82
Sand	01
Organic matter	6.64
Water	4.70
Nitrogen	29

GUANO. Patagonian.

Moisture	35.86
*Organic matter and ammoniacal salts	26.07
Phosphate of lime	22.01
Carbonate of lime	5.64
Alkaline salts	7.34
Insoluble matter	3.08
	100.00
*Nitrogen	4.42
Equal to ammonia	5.37

ANIMAL GUANO. Australia.

Moisture	...	...	...	...	...	...	...	...	18.20
*Organic matter	...	...	...	...	...	...	...	...	41.78
†Phosphoric acid	...	...	...	...	...	...	...	...	15.01
Lime	...	...	...	...	...	...	...	...	18.52
Alkaline salts	...	...	...	...	...	...	...	...	.90
Insoluble matters	...	...	...	...	...	...	...	...	5.59
									100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	3.85
†Equal to tribasic phosphate	...	...	...	...	...	...	...	...	32.75

GUANO. Mejillones.

Moisture	..	...	...	...	..	...	...	...	7.09
*Organic matter	...	...	...	...	...	...	...	...	7.44
†Phosphoric acid	...	...	...	...	...	...	...	...	33.97
Lime	...	...	...	...	...	...	...	...	37.01
Magnesia	...	..	...	...	...	...	...	...	2.83
Chloride of sodium	...	...	...	...	...	...	...	...	2.87
Potash	...	...	...	...	...	...	...	...	.34
Sulphuric acid	...	...	...	...	...	...	...	...	2.53
‡Carbonic acid	...	...	...	...	...	...	...	...	2.76
Oxide of iron	...	...	...	...	...	...	...	...	.69
Insoluble matters	...	...	...	...	...	...	...	...	2.47
									100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	.93
†Equal to tribasic phosphate	...	...	...	...	...	...	...	...	74.15
‡Equal to carbonate of lime	...	...	...	...	...	...	...	...	6.25

GUANO. Produced by Bats.

No. 1.								No. 2.
{ .98 .84 per cent.								
Nitrogen	...	...	...	...	...	...	...	.70
Phosphoric acid	...	...	...	11.03	...	...	...	10.56
Sand	...	...	...	...	...	...	...	32.80
Loss on ignition	...	...	...	...	...	...	...	31.62
No. 3.								
Water	...	...	...	...	...	...	...	42.689
Volatile matter	...	...	...	...	...	...	...	20.799
Nitrogen	...	...	...	...	...	...	...	2.021
Ash	...	...	...	...	...	...	...	36.512
Phosphoric acid	...	...	...	...	...	...	...	1.170

GUANO. Patagonian.

	1.	2.	3.
Moisture	21.46	19.55	6.59
*Organic matter and salts of ammonia	11.74	11.08	10.23
Phosphates of lime and magnesia	27.61	16.58	23.44
Carbonate and sulphate of lime	2.99	8.92	—
Alkaline salts	6.07	9.39	9.05
Sand	30.13	34.48	50.69
	100.00	100.00	100.00
*Containing nitrogen	1.83	1.20	.90
Equal to ammonia	2.22	1.45	1.09

PHOSPHATIC GUANOS.

	Falkland Island.	Patos Island.
Moisture	33.43	35.86
*Organic matter and ammoniacal salts	21.42	26.07
Bone phosphates	32.04	22.01
Carbonate of lime	2.52	5.64
Alkaline salts	6.22	7.34
Insoluble matter	4.37	3.08
	100.00	100.00
*Containing nitrogen	4.31	4.42
Equal to ammonia	5.23	5.37

GUANO. Angamos Island.

Moisture	7.24	8.76
*Organic matter and salts of ammonia	69.01	69.96
†Bone phosphates	12.06	12.07
Alkaline salts	9.02	8.27
Insoluble matter	2.67	.94
	100.00	100.00
*Containing nitrogen	21.15	19.30
Equal to ammonia	25.68	23.44
†Containing soluble phosphoric acid.. ...	{ not deter- mined }	{ 2.94 } 3.01

GUANO. Mejillones.

Moisture and organic matter ...	14.46	15.07	13.87
*Phosphoric acid	32.35	34.75	33.79
Lime	37.56	31.75	30.61
Magnesia, carbonic acid, sulphuric acid and alkaline salts }	12.54	13.63	14.30
Insoluble matter	3.09	4.90	7.43
	100.00	100.00	100.00
*Equal to tribasic phosphate of lime	70.62	75.77	73.76

GUANO. Gulf of California.

	1.	2.	3.
Moisture	4.83	1.30	3.70
*Organic matter and water... ..	12.72	9.80	11.13
†Phosphoric acid	34.33	40.31	34.81
Lime	37.36	37.21	34.07
Magnesia... ..	1.76	7.18	9.54
Oxide of iron... ..	.50		
Alumina	.81		
Carbonic acid... ..	.46		
Alkaline salts... ..	5.54	4.20	6.75
Siliceous matter	1.69		
	100.00	100.00	100.00
*Containing nitrogen	1.04	.37	.86
Equal to ammonia... ..	1.26	.45	1.04
*Equal to tribasic phosphate of lime	74.94	88.01	75.99

GUANO. Curagoa.

	1.	2.	3.
Moisture	11.53	8.05	16.80
Organic matter	7.11	8.70	6.30
*Phosphoric acid	32.65	30.96	30.02
Lime	40.19	42.05	37.40
†Carbonic acid	2.30	3.79	1.19
Magnesia, sulphuric acid and } alkalies }	6.02	6.21	8.05
Insoluble matter	.20	.24	.24
	100.00	100.00	100.00
*Equal to tribasic phosphate of lime	71.27	67.59	65.23
†Equal to carbonate of lime ...	5.22	8.61	2.70

GUANOS.

	Quito Serrano.	Petrel Island.	Coral Island.	Booby Island.
Moisture			7·04	6·10
*Organic matter	8·50	9·51	11·76	10·18
+Phosphoric acid	32·44	30·50	35·29	21·77
Lime	39·41	36·44	41·76	45·36
Magnesia				
Sulphuric acid	17·10	18·05	3·55	16·50
Alkaline salts				
Carbonic acid				
Insoluble matter	2·55	5·50	·60	·09
	100·00	100·00	100·00	100·00
Containing nitrogen }			·38	
*Equal to ammonia }			·46	
+Equal to phosphate of lime }	70·82	66·58	77·05	47·52

GUANO. Baker Island.

	1.	2.	3.
Moisture	12·05	4·71	19·16
*Organic matter... ..	6·25	6·17	8·61
+Phosphoric acid	32·32	39·44	29·55
Lime	42·34	43·01	34·69
±Carbonic acid	2·99	·27	
Magnesia	·71	2·32	
Oxide of iron	·14		
Alumina	·09	·96	7·26
Sulphuric acid	1·19		
Alkalies and loss	1·78	2·33	
Insoluble matter	·14	·79	·73
	100·00	100·00	100·00
*Containing nitrogen	—	·34	·72
Equal to ammonia	—	·41	·87
+Equal to tribasic phosphate ...	70·55	86·11	64·51
±Equal to carbonate of lime ...	6·79	·61	—

GUANO. Howland Island.

	1.	2.	3.
Moisture	10.01	15.31	8.95
Organic matter	5.72	7.26	6.15
*Phosphoric acid	34.21	33.35	34.80
Lime	43.03	39.36	43.26
Magnesia, sulphuric acid, } alkalies, &c.	6.83	4.56	6.54
Insoluble matter	.20	.16	.30
	100.00	100.00	100.00

*Equal to tribasic phosphate } of lime	74.68	72.80	75.97
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GUANOS.

	Jarvis Island.	Enderbury Island.
Moisture	11.27	8.76
Organic matter	9.93	†8.81
*Phosphoric acid	23.88	28.74
Lime	37.18	40.76
†Carbonic acid	5.02	\$7.26
Magnesia, &c.	12.63	5.58
Insoluble matter	.09	.09
	100.00	100.00

*Equal to phosphate of lime	52.13	
†Equal to carbonate of lime	11.41	
‡Containing nitrogen		.38
Equal to ammonia		.46
\$Equal to phosphate of lime		62.74
Equal to carbonate of lime		16.50

GUANO. Bird Island.

Moisture	6.92
Organic matter	4.80
Phosphate of lime	80.44
Carbonate of lime	6.38
Magnesia	1.34
Alkaline salts	.12
Silica	—
	100.00

GUANO.

	Shaw's Island.	Flint Island
Moisture and organic matter... ..	13·67	13·26
*Phosphoric acid	34·69	37·13
Lime	43·26	43·43
Magnesia, alkalies, &c.	7·53	5·99
Insoluble matter	·85	·19
	100·00	100·00
*Equal to phosphate of lime... ..	75·73	81·05

GUANO.

	Starbuck Island.	Starbuck Island Crust.	
Moisture	11·56	8·75	10·01
*Organic matter	7·25		
†Phosphoric acid	33·61	45·57	40·12
Lime	41·04	40·94	44·96
Magnesia	1·16	·64	—
Sulphuric acid	·88	§3·56	4·87
‡Carbonic acid	1·05	—	—
Alkalies and loss	3·43	·47	—
Silica	·02	·07	·04
	100·00	100·00	100·00
*Equal to ammonia... ..	·47	—	—
†Equal to phosphate of lime... ..	73·67	99·48	87·58
‡Equal to carbonate of lime	2·38	—	—
§Sulphate of lime	—	6·05	—

GUANO.

	Monk's Island.	Raza Island.
Moisture	2·39	12·34
*Organic matter and water of com- bination	7·93	
Lime	39·48	36·57
Magnesia	1·17	—
Phosphoric acid... ..	41·34	38·35
Sulphuric acid	4·57	—
Soluble silica and sand	2·28	4·03
	99·16	
*Containing nitrogen	·139	

SOMBRERO GUANOS.

	1.	2.	3.
Moisture	9·06	7·51	10·09
Water of combination and a little organic matter... }	4·38	6·19	4·90
*Phosphoric acid	34·41	35·09	34·11
Lime	36·17	38·19	38·42
Magnesia	·36	·44	·41
Alkalies and flourine	1·86	1·87	1·61
Oxide of iron	2·82	3·22	2·85
Alumina	6·89	4·26	4·23
Carbonic acid	1·55	1·36	1·68
Sulphuric acid	·66	·44	·36
Chlorine	{undeter- mined }	·39	·31
Insoluble matters	1·84	1·04	1·03
	100·00	100·00	100·00
*Equal to bone earth	74·55	76·02	73·90

MANURES.

GAS LIME.

	Guyard.	Graham.
Calcium hydrate	15·10	17·72
„ Carbonate	24·20	44·48
„ Sulphate	·25	2·80
„ Sulphite	1·50	14·57
„ Sulphide	6·90	—
„ Oxysulphide	3·20	—
„ Hyposulphite	11·80	12·30
„ Cyanide	·25	—
Iron sulphide	·55	—
Sulphur	4·30	5·14
Silica	1·80	·71
Alumina	·70	—
Magnesia	traces.	—
Tar	·25	—
Water	19·20	32·28

MANURE (Liquid). Imperial gallon:

Carbonate and humate of ammonia	...	...	...	...	35.58
Organic matters	...	...	...	...	20.59
{ Containing nitrogen	...	...	...	1.49	{
{ Equal to ammonia	...	...	...	1.81	
Inorganic matters consisting of—					
Soluble silica	...	...	...	...	2.34
Lime	...	...	...	...	11.48
Magnesia	...	...	...	...	2.87
Potash	...	...	...	...	16.92
Chloride of potassium	...	...	...	...	2.74
Chloride of sodium	...	...	...	...	40.35
Phosphoric acid	...	...	...	...	4.83
Sulphuric acid	...	...	...	...	3.94
Carbonic acid and loss	...	...	...	...	5.80
					91.27

147.44**SUPERPHOSPHATE, (Good.)**

Moisture	...	...	...	...	10.23
Water of combination and *organic matter	...	...	...	...	22.65
Bi-phosphate of lime	...	...	...	...	18.91
Equal to bone earth rendered soluble by acid	...	...	...	...	(29.60)
Insoluble phosphates	...	...	...	...	12.05
Sulphate of lime, alkaline salts and magnesia	...	...	...	...	32.06
Insoluble siliceous matter	...	...	...	...	4.10
					100.00

*Containing nitrogen	...	...	...	...	1.66
Equal to ammonia	...	...	...	...	2.02

Superphosphates of lime.

	Good.	Bad.
	1.	2.
Water	20.53	14.40
Organic matter	14.76	8.93
Soluble phosphate of lime	10.31	3.60
Equal to bone earth	(16.09)	(5.61)
Insoluble phosphate	17.72	6.83
Sulphate of lime	28.39	44.23
Alkaline salts	1.56	2.51
Sand	6.73	19.50
100.00		100.00

Percentage of nitrogen	...	...	...	0.853	1.44
Equal to ammonia	...	...	...	1.065	1.75

MANURE. Made from boiled bones and bone dust.

	Boiled Bones.	Bone Dust.
Moisture	25·04	9·28
*Organic matter	15·28	31·23
Phosphate of lime	34·10	45·49
Sulphate and carbonate of lime	13·44	9·32
Alkalies and magnesia	4·01	
Sand	8·13	4·68
	100·00	100·00
*Containing nitrogen	1·37	3·54

MEAT FIBRE REFUSE.

	South American.	Aus- tralian.
Moisture	9·07	6·73
*Organic matter	87·41	89·54
Phosphate of lime	3·52	·89
Carbonate of lime and alkalies		1·13
Sand		1·71
	100·00	100·00
*Containing nitrogen	11·97	10·94
Equal to ammonia	14·67	13·28

PHOSPHATES.

WOOD. Fossil from Bedfordshire.

Moisture	1·12
Organic matter	3·49
Lime	47·75
*Phosphoric acid	32·96
Oxide of iron, alumina, and carbonic acid	10·49
Insoluble matters	4·19
	100·00
*Equal to tribasic phosphate of lime... ..	71·95

ESTRAMADURA PHOSPHATE.

Moisture and water of combination	·68
Lime	42·68
Phosphoric acid	36·36
Oxide of iron and alumina and flourine	8·81
Insoluble siliceous matter	11·47
	100·00

PHOSPHATE. (American, or Maracaibo Guano.)

Moisture	2·39
Organic matter and water of combination... ..	7·93
Lime	39·48
Magnesia	1·17
Phosphoric acid	41·34
Sulphuric acid	4·57
Soluble silica and sand	2·28
	99·16
Nitrogen... ..	·139
Equal to ammonia	·169

PHOSPHATES. Pedro Keys.

Moisture and water of combination	9.34
*Phosphoric acid	29.69
Lime	36.01
Oxide of iron, alumina, magnesia and carbonic acid	19.69
Insoluble matter	5.27
	100.00
*Equal to tribasic phosphate	64.81

PHOSPHATE. Somberero.

	1.	2.
Moisture	7.03	7.63
Water of combination	1.64	1.49
*Phosphoric acid	32.45	31.70
Lime	46.11	45.92
†Carbonic acid	7.33	7.30
Oxide of iron and alumina	4.29	4.87
Insoluble matter	1.15	1.09
	100.00	100.00
*Equal to tribasic phosphate	70.84	69.20
†Equal to carbonate of lime	16.64	16.54

PHOSPHATES. Bordeaux. Rich.

	1.	2.
Moisture	2.28	3.28
Water of combination	2.52	1.24
*Phosphoric acid	35.51	33.72
Lime	47.81	44.23
Magnesia	.12	1.74
Flourine	.89	
†Carbonic acid	5.06	3.26
Sulphuric acid	.64	
Oxide of iron	2.80	2.66
Alumina		6.42
Insoluble matter	2.37	3.45
	100.00	100.00
*Equal to tribasic phosphate	77.52	73.61
†Equal to carbonate of lime	11.50	7.40

PHOSPHORITE. Spanish.

	Caceres.	Montan- chez.
Moisture	21	16
*Phosphoric acid	38.85	39.09
Lime	51.65	51.77
Flourine, carbonic acid, oxide of iron, } and alumina }	2.61	3.02
Insoluble siliceous matter	6.68	5.96
	100.00	100.00
*Equal to tribasic phosphate	84.33	85.33

PHOSPHATES. German.

	1.	2.
Moisture and water of combination	1.78	2.74
*Phosphoric acid	35.73	30.91
Lime	44.22	43.81
Magnesia	.42	
Oxide of iron	7.38	6.66
†Carbonic acid	1.65	2.18
Alumina and flourine	5.34	8.45
Insoluble matter	3.48	5.25
	100.00	100.00
*Equal to tribasic phosphate	77.99	67.48
†Equal to carbonate of lime	3.75	4.95

PHOSPHORITE. Rich Nassau (Staffelite).

	1.	2.
Water	.65	.25
*Phosphoric acid	40.56	38.12
Lime	56.29	53.92
Oxide of iron and alumina	1.21	.93
Magnesia	.97	.69
Flourine		3.16
†Carbonic acid	—	2.75
Sulphuric acid... ..	—	.09
Silica... ..	.32	.09
	100.00	100.00
*Equal to tribasic phosphate	88.54	83.21
†Equal to carbonate of lime	—	6.25

PHOSPHATES. Canadian.

	1.	2.	3.
Moisture and water of com- bination, and loss on heating }	·62	·10	·11
*Phosphoric acid	33·51	41·54	37·68
Oxide of iron, alumina, flour- ine, &c. }	7·83	3·03	6·88
Insoluble siliceous matter	11·90	·59	4·29
Lime	46·14	54·74	51·04
	100·00	100·00	100·00
*Equal to tribasic phosphate of lime }	73·15	90·68	82·25

PHOSPHATE. Silurian.

Organic matter and loss on heating	3·98
*Phosphoric acid	29·67
Lime	37·16
Magnesia	·14
Oxide of iron	1·07
Alumina, flourine and loss	5·84
Insoluble siliceous matter	22·14
	100·00
*Equal to tribasic phosphate	64·77

PHOSPHATE.

	St. Domingo.	Alta Velta.
Moisture and water of combination	18·51	19·33
*Phosphoric acid	20·07	26·23
Oxide of iron	7·38	7·23
Alumina	21·20	20·22
Insoluble matter	32·84	26·99
	100·00	100·00
*Equal to tribasic phosphate	43·81	57·26

PHOSPHATE. Redonda.

	1.	2.
Moisture and water of combination	23·23	27·70
*Phosphoric acid	36·95	19·40
Alumina and oxide of iron	36·38	25·65
Insoluble matter	3·44	27·25
	100·00	100·00
*Equal to tribasic phosphate	80·66	42·35

PHOSPHATES. Navassa.

	1.	2.
Moisture	5·91	8·50
Water of combination and organic matter...	5·46	4·15
*Phosphoric acid	31·18	28·47
Lime	37·70	34·07
Magnesia	—	·45
†Carbonic acid	2·38	2·30
Oxide of iron	4·18	4·49
Alumina	9·11	9·48
Sulphuric acid flourine	1·16	1·81
Insoluble matters	2·92	6·28
	100·00	100·00
*Equal to tribasic phosphate	68·07	62·15
†Equal to carbonate of lime	5·41	5·22

PHOSPHATES. South Carolina lands.

	1.	2.	3.
Moisture, water of combination	7·40	2·29	10·30
*Phosphoric acid	26·50	24·29	22·06
Lime	37·20	38·71	37·24
Oxide of iron, alumina, magnesia } and carbonic acid, &c. ... }	16·27	17·28	15·45
Insoluble matters	12·63	17·43	14·95
	100·00	100·00	100·00
*Equal to tribasic phosphate	57·85	53·02	48·16

PHOSPHATES. South Carolina river.

	1.	2.
Moisture, water of combination, and loss } on ignition	4·07	1·56
*Phosphoric acid	28·44	26·89
Lime	45·07	42·28
Magnesia, carbonic acid, oxide of iron } and alumina... ..	15·16	18·47
Insoluble matter	7·26	10·80
	100·00	100·00
*Equal to tribasic phosphate	62·09	58·70

PHOSPHATES. St. Martin's.

	1.	2.	3.
Moisture and water of combination	5·50	2·94	4·01
*Phosphoric acid	36·94	31·18	35·22
Lime	48·87	53·48	50·15
†Carbonic acid	2·89	10·73	5·79
Oxide of iron and alumina	4·78	1·14	4·59
Insoluble matters	1·02	·53	·24
	100·00	100·00	100·00
*Equal to tribasic phosphate	80·64	68·07	76·88
†Equal to carbonate of lime	6·57	24·39	13·15

PHOSPHATES. Aruba.

	1.	2.
Moisture and water of combination	5·55	3·79
*Phosphoric acid	31·11	33·04
Lime	41·69	47·53
†Carbonic acid... ..	6·69	14·60
Oxide of iron, alumina, &c.	14·72	
Insoluble matter	·24	1·04
	100·00	100·00
*Equal to tribasic phosphate	67·91	72·13
†Equal to carbonate of lime... ..	15·20	—

PHOSPHATES. Curagao.

Moisture	8.72
Organic matter	5.79
*Phosphoric acid	33.51
Lime	43.01
+Carbonic acid	2.96
Magnesia and alkalies	5.71
Sand	.30
	100.00
*Equal to tribasic phosphate	73.15
+Equal to carbonate of lime	6.72

POTASH SALTS. Crude German.

Moisture	11.63
Organic matter	.73
Oxide of iron	.34
Sulphate of potash	24.03
Sulphate of magnesia	1.14
Chloride of magnesium	12.01
Chloride of sodium	47.85
Sulphate of lime	.78
Magnesia	.52
Sand	.97
	100.00

SODA. Nitrate of.

	1.	2.	3.
Moisture	1.87	2.09	3.427
Nitrate of soda	95.68	96.65	94.210
Chloride of sodium	.79	1.07	1.184
Sulphate of soda	1.17		
Sand	.49	.19	1.179
	100.00	100.00	100.000

SOOT.

Moisture	7·39
*Organic matter	43·09
†Sulphate of ammonia	12·72
Insoluble siliceous matter	15·12
Oxide of iron and alumina	6·51
Carbonate of lime	10·63
Carbonate of magnesia	1·84
Alkaline salts	2·70
	100·00
*Containing nitrogen	·21
Equal to ammonia	·25
†Containing ammonia	3·29

SALT. Russian, produced by the freezing process.

	Sea of Okhotsk.	Oustkout.	Irkoutsk.	Selen- ginsk.
Chloride of sodium ...	77·60	74·84	91·49	74·71
“ aluminium ...	6·20	1·17	2·60	6·50
“ calcium ...	·94	5·21	1·10	1·44
“ magnesium ...	1·66	3·57	2·05	3·55
Sulphate of soda	13·60	15·21	2·76	13·80
	100·00	100·00	100·00	100·00

SALT CAKE. (Crude).

Sulphate of soda	96·515
“ lime	·923
Sulphuric acid	·616
Chloride of sodium	1·345
Sesquioxide of iron	·191
Water	·187
Insoluble matter	·130
Loss	·093
	100·000

K

URINE. Human (solid matter of).

*Organic matter	...	...	...	...	...	...	67.54
Insoluble siliceous matter	...	...	...	...	...	...	.09
Oxide of iron	...	...	...	...	...	...	.05
Lime	...	...	...	...	...	...	.61
Magnesia	...	...	...	...	...	...	.47
Phosphoric acid	...	...	...	...	...	...	4.66
Sulphuric acid	...	...	...	...	...	...	.46
Potash	...	...	...	...	...	...	1.83
Chloride of potassium	...	...	...	...	...	...	5.41
“ sodium	...	...	...	...	...	...	18.88
							100.00
*Containing nitrogen	...	...	...	...	...	...	19.43
Equal to ammonia	...	...	...	...	...	...	23.60

URINE. Human (fresh).

Water	...	...	...	...	...	...	97.100
*Organic matter	...	...	...	...	...	...	2.026
Insoluble siliceous matter	...	...	...	...	...	...	.003
Oxide of iron	...	...	...	...	...	...	.002
Lime	...	...	...	...	...	...	.018
Magnesia	...	...	...	...	...	...	.014
Phosphoric acid	...	...	...	...	...	...	.040
Sulphuric acid	...	...	...	...	...	...	.014
Potash	...	...	...	...	...	...	.055
Chloride of potassium	...	...	...	...	...	...	.162
“ sodium	...	...	...	...	...	...	.566
							100.000
*Containing nitrogen	...	...	...	...	...	...	.58
Equal to ammonia	...	...	...	...	...	...	.71

URINE of FIG.

Urea	...	...	...	...	...	...	4.90
Hippurate of potash	...	...	...	...	...	...	
Lactate of potash	...	...	...	...	...	not determined	
Carbonate of magnesia	...	...	...	...	...	...	.87
Carbonate of lime	...	...	...	...	...	...	
Sulphate of potash	...	...	...	...	...	...	1.98
Phosphate of potash	...	...	...	...	...	...	1.02
Chloride of sodium	...	...	...	...	...	...	1.28
Silica	...	...	...	...	...	...	.07
Water and organic matter not determined	...	...	...	...	...	...	979.14
							1000.00

URINE of the HORSE.

Urea	31·00
Hippurate of potash	4·74
Lactate of potash	20·09
Carbonate of magnesia	4·16
" lime	10·82
Sulphate of potash	1·18
Phosphate of potash	—
Chloride of sodium	·74
Silica... ..	1·01
Water and organic matter	910·76
	1000·00

URINE of the COW.

Urea	18·48
Hippurate of potash	16·51
Lactate of potash	17·16
Carbonate of magnesia	4·74
" lime	·55
Sulphate of potash	3·60
Phosphate of potash	—
Chloride of sodium	1·52
Silica... ..	spur
Water and organic matter	921·32
	1000·00

URINE of GOAT.

Urea	·76
Hippuric acid	·88
Mucus	·05
Salts soluble in water	8·70
Salts insoluble in water	·40
Extractive matter soluble in alcohol	4·66
Extractive matter soluble in water	·56
Water	983·99
	1000·00

CATTLE FOODS.

ACORNS.

Moisture	40·80
Fatty matters	2·64
*Flesh-forming matters...	4·39
Starch, gum and sugar ...	46·82
Cellulose	3·94
Ash	1·41

100·00

*Containing nitrogen 703

ACORNS. Ash of.

Potash	64·64
Soda	5·57
Magnesia	6·86
Lime	19·19
Phosphoric acid	·96
Sulphuric acid..	1·89
Silica	·98
Peroxide of iron	
Chloride of sodium	

100·09

ACORNS. Decorticated.

Moisture	40·88
Oil	2·64
*Albuminous compounds	4·39
Mucilage, sugar, &c.	46·74
Woody fibre	3·94
Ash	1·41

100·00

*Containing nitrogen 703

ACACIA NILOTICA. Ash of seeds.

Potash	33·388
Soda	5·360
Lime	14·212
Magnesia	12·103
Oxide of iron	·612
Phosphoric acid	16·229
Sulphuric acid... ..	3·650
Silicic acid	1·809
Chlorine	·345
Carbonic acid	12·112
	99·820

APPLE. Pumice.

Water	58·30
Flesh-forming substances	4·94
Sugar, gum, &c.	12·44
Fibre	22·15
Ash	1·65
Oil	·52
	100·00

BARLEY STRAW.

Water	15·20
Oil	1·36
*Albumen and other soluble protein compounds	·68
Sugar, mucilage, extractive matters soluble in water	2·24
Digestible fibre	5·97
Soluble inorganic matters	2·88
†Insoluble protein compounds	3·75
Indigestible woody fibre	66·54
Insoluble inorganic matter	1·38
	100·00
*Containing nitrogen	·11
†Containing nitrogen	·60

BANCOUL NUTS. Kernel.

Water	...	...	...	...	...	...	...	...	...	5.000
Oil	...	...	...	...	...	...	...	...	...	62.175
Nitrogenous substances...	...	...	...	...	...	...	...	...	...	22.653
Non-nitrogenous substances...	...	...	...	...	...	...	...	...	...	6.827
Cinereal substances	...	...	...	...	...	...	...	...	...	3.345
										100.000
Nitrogen	...	...	...	...	...	...	...	...	...	3.625
Potash	...	...	...	} soluble in water	}	...	...	...	...	17.250
Magnesia	...	...	...			...	...	...	...	.650
Phosphoric acid	...	...	...			...	...	...	...	14.320
Magnesia	...	...	...			...	...	...	...	14.470
Lime	...	...	...	} insoluble in water	}	...	...	...	...	13.070
Silica	...	...	...			...	...	...	...	4.640
Phosphoric acid	...	...	...			...	...	...	...	35.600

BANCOUL NUT CAKE.

Water	...	...	...	...	...	...	...	...	...	10.25
Oil	...	...	...	...	...	...	...	...	...	5.50
Nitrogenous matter	...	...	...	...	...	...	...	...	...	47.81
Non-nitrogenous matter	...	...	...	...	...	...	...	...	...	24.04
Phosphoric acid	...	...	...	...	...	...	...	...	...	3.68
Potash	...	...	...	...	...	...	...	...	...	1.53
Magnesia, lime, silica, &c.	...	...	...	...	...	...	...	...	...	7.19
										100.00
Nitrogen	...	...	...	...	...	...	...	...	...	7.65

BEETROOT PULP. French.

Moisture	...	...	...	...	...	...	...	...	...	77.10
*Flesh-forming matters...	...	...	...	...	...	...	...	...	...	1.93
Mucilage, pectinous compounds, and a little sugar...	...	...	...	...	...	...	...	...	...	1.19
Lactic acid	...	...	...	...	...	...	...	...	...	1.12
Crude cellular fibre	...	...	...	...	...	...	...	...	...	16.07
Ash	...	...	...	...	...	...	...	...	...	2.59
										100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	...	.39

BELGIUM PULP. 1 year old.

Moisture	70·00
*Flesh-forming matters...	2·43
Digestible fibre	18·67
Cellulose	6·48
Ash	2·42
	100·00
*Containing nitrogen	·39

BEETROOT PULP. Lavenham.

Moisture	70·11
*Flesh-forming matters	2·25
Sugar	3·39
Mucilage and pectinous compounds	1·93
Digestible cellular fibre...	15·13
Woody fibre	5·32
Ash	1·87
	100·00
*Containing nitrogen	·361

BASSIA NUTS.

Moisture	6·54
Oil	40·40
*Albuminous matters	9·31
Mucilage, sugar, &c.	32·41
Woody fibre	8·24
Ash	3·10
	100·00
*Containing nitrogen	1·49

BASSIA NUT CAKE. Indian.

Moisture	13·54
*Organic matter	80·79
Phosphates	1·43
Magnesia, &c.	3·63
Sand	·61
	100·00
*Containing nitrogen	2·73
Equal to ammonia	3·31

BEECH NUT CAKE.

Moisture	11.44
Oil	5.22
*Albuminous compounds	18.81
Mucilage, sugar and digestible fibre ..	36.17
Woody fibre	23.52
†Ash	4.84
	100.00
*Containing nitrogen	3.01
†Containing sand	.62

BREWERS' GRAINS.

Water	69.70
Mineral matter ..	1.98
Protein compounds	5.87
Respiratory principles	15.24
Fibre... ..	7.21
	100.00
Nitrogen	.94

BEAN STRAW.

Water	19.40
Fatty matters	1.02
*Albuminous compounds	3.36
Gum and other carbonaceous principles	6.93
Woody fibre	65.58
†Mineral matters	3.71
	100.00
*Containing nitrogen	.54
†Containing phosphoric acid	.27
Potash	.78

CAROB BEANS. Natural state.

	1.	2.
Water	14.22	17.11
Sugar	54.07	51.42
Mucilage and other digestible respiratory principles	17.41	13.75
Woody fibre	3.88	6.01
Oil	.96	1.19
Protein compounds	7.72	7.50
Insoluble ash	.62	ash 3.02
Soluble organic matters	1.12	
	100.00	100.00
Nitrogen		1.20

COCOA CAKE. Theobroma Cacao.

Moisture	14.95
Oil	8.02
*Albuminous compounds	19.87
Woody fibre	18.26
Mucilage, sugar and digestible fibre	32.46
Ash	6.44
	100.00
*Containing nitrogen	3.18

COCOA NUT FIBRE REFUSE. Dry and wet.

	Wet.	Dry.
Moisture	71.51	—
Cellulose	9.29	32.61
*Nitrogen compounds	.36	1.26
Other organic compounds	15.81	55.49
†Ash	3.03	10.64
	100.00	100.00
*Containing nitrogen	.058	.23
†Containing sand	.77	2.70

COCOA NUT CAKE.

Moisture	8·97
Oil	11·44
*Flesh-forming substances	20·75
Gum, sugar, mucilage and digestible fibre	39·41
Cellulose	14·27
Ash	5·16

100·00

*Containing nitrogen	3·32
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CHINA OIL CAKE.

Water	14·44
Oil	6·88
*Albuminous compounds	45·87
Starch, &c.	21·48
Fibre... ..	5·25
Ash	6·08

100·00

*Nitrogen... ..	7·34
-----------------	------

CASTOR OIL CAKE.

Moisture	9·95
*Organic matter	81·07
Phosphate of lime and magnesia... ..	4·49
†Alkaline salts	1·80
Sand	2·69

100·00

*Containing nitrogen	8·69
Equal to ammonia	10·55
†Containing phosphoric acid	·06
Equal to tribasic phosphate... ..	·13

COTTON SEED MEAL.

Moisture	8·61
Oil	12·57
*Albuminous compounds	43·12
Mucilage, sugar, &c.	24·86
Cellulose	5·82
Mineral matter	5·02
	100·00
*Containing nitrogen	6·90

COTTON CAKE. Decorticated.

Moisture	9·18
Oil	16·05
*Albuminous compounds	41·25
Non-nitrogenous principles	16·45
+Phosphates and insoluble earthy matters	8·15
Woody fibre	8·92
	100·00
*Containing nitrogen	6·58
+Containing {phosphoric acid	3·16
{potash	3·12

CABBAGE. Cattle.

Water	89·42
Oil	·08
*Soluble protein compounds... ..	1·19
Sugar, digestible fibre, &c.	7·01
Soluble mineral matters	·73
+Insoluble protein compounds	·31
Woody fibre	1·14
Insoluble mineral matter	·12
	100·00
*Containing nitrogen	·19
+Containing nitrogen	·05

CLOVER. White seed shells.

Water	...	...	...	...	...	...	...	...	...	11.41
Albuminoids	...	...	...	...	...	...	...	...	...	18.35
Soluble carbo-hydrates	...	...	...	...	...	...	...	...	...	36.83
Crude fat	...	...	...	...	...	...	...	...	...	3.09
Fibre	...	...	...	...	...	...	...	...	...	22.42
Ash	...	...	...	...	...	...	...	...	...	7.90
										100.00

CLOVER. New kind. Trifolium striatum. Natural state.

Water	...	...	...	...	...	...	...	...	...	55.46
Oil and wax	...	...	...	...	...	...	...	...	...	1.52
Soluble albuminous compounds	...	...	...	...	...	...	...	...	...	3.79
Insoluble albuminous compounds	...	...	...	...	...	...	...	...	...	1.96
Gum and sugar	...	...	...	...	...	...	...	...	...	2.96
Digestible fibre	...	...	...	...	...	...	...	...	...	12.64
Cellulose	...	...	...	...	...	...	...	...	...	18.29
Soluble mineral matter	...	...	...	...	...	...	...	...	...	1.66
Insoluble mineral matter	...	...	...	...	...	...	...	...	...	1.72
										100.00

CLOVER. Trifolium striatum. Calculated dry.

Oil	...	...	...	...	...	...	...	...	...	3.39
*Soluble albuminous compounds	...	...	...	...	...	...	...	...	...	8.50
†Insoluble albuminous compounds	...	...	...	...	...	...	...	...	...	4.40
Gum and sugar	...	...	...	...	...	...	...	...	...	6.70
Digestible fibre	...	...	...	...	...	...	...	...	...	28.37
Cellulose	...	...	...	...	...	...	...	...	...	41.06
Soluble mineral matter	...	...	...	...	...	...	...	...	...	3.72
Mineral matter insoluble in water	...	...	...	...	...	...	...	...	...	3.86
										100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	...	1.36
†Containing nitrogen	...	...	...	...	...	...	...	...	...	.70

CLOVER. Ash of. No. 1.

Carbonic acid	25.0
Sulphuric acid... ..	2.5
Phosphoric acid	6.3
Chlorine	2.6
Magnesia	6.3
Lime	24.6
Potash	26.6
Soda	.5
Silica... ..	5.3
Oxide of iron and alumina	.3
Carbon, water and loss	—
100.0	

CLOVER (Red). Ash of. No. 2.

Potash	16.10
Soda	40.71
Magnesia	8.28
Lime	21.91
Phosphoric acid	4.12
Sulphuric acid... ..	1.06
Silica	2.60
Peroxide of iron	.46
Chloride of sodium	4.73
99.97	

CLOVER. Ash.

Silica	5.438
Sulphate of potash... ..	3.080
Chloride of sodium... ..	1.670
Carbonate of potash	12.728
“ soda	13.528
“ lime	38.216
Magnesia	4.160
Phosphate of iron	1.240
“ lime	11.970
“ magnesia	6.790
Carbonaceous matter	.160
98.980	

CLOVER. White seed shells.

Water	11.4
Albuminoids	18.0
Soluble carbo-hydrates	36.0
Gum and sugar	3.0
Fibre	22.0
Ash	7.0

CLOVER. New kind. *Trifolium striatum*. N. A. state.

Water	11.4
Oil and wax	1.0
Soluble albuminous compounds	18.0
Insoluble albuminous compounds	3.0
Gum and sugar	3.0
Digestible fibre	22.0
Cellulose	7.0
Soluble mineral matter	1.0
Insoluble mineral matter	1.0

CLOVER. Trifolium

Oil	1.0
*Soluble albuminoids	18.0
†Insoluble albuminoids	3.0
Gum and sugar	3.0
Digestible fibre	22.0
Cellulose	7.0

	Decorti- cated.	Undecor- ticated.
...	9.26	8.10
...	5.58	8.76
...	43.43	30.50
...ble fibre...	31.39	27.78
...	5.18	19.12
...	5.16	5.74
	100.00	100.00
	6.95	4.88

ST, and husks of.		Husks.	Nut.
...	...	6.54	6.24
...	...	20.37	41.23
...compounds	...	15.18	28.25
...and digestible fibre	...	30.39	7.16
...	...	19.98	13.87
...	...	7.54	3.25
		100.00	
...nitrogen	...	2.43	
...sand	...	3.34	

X CHAFF.		
...	...	14.60
...	...	2.82
...inous matters	...	4.75
...gar, &c.	...	8.72
...ble fibre	...	18.56
...	...	43.12
...	...	7.43
		100.00
...aining nitroge	...	.76

CANDLE NUTS. *Aleurites tribola*.**Shells.**

Water	3.71
Organic matter	89.90
Mineral matter	6.39

Kernels.

Water	5.25
Fat	62.97
Cellulose	28.99
Mineral matter	2.79

Ash of Kernel.

Lime	18.69
Magnesia	6.01
Potash	11.33
Phosphoric acid	29.30

COMFREY (Prickly). *Symphytum asperrinum*.

Water	90.66
Oil and chlorophyll	.20
Soluble nitrogenous compounds	1.10
Insoluble nitrogenous compounds	1.62
Gum, mucilage, and a little sugar	1.28
Woody fibre	3.30
Soluble mineral matters	1.25
Insoluble mineral matters	.59

100.00

Total nitrogen	.434
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DARI GRAIN.

Moisture	13.14
Oil	3.30
*Albuminous matters	7.75
Starch, sugar, &c.	68.45
Woody fibre	4.72
†Ash	2.64

100.00

*Containing nitrogen	1.24
†Containing sand	.88
Phosphates	.81
Alkaline salts	.95
Phosphoric acid	.38

EARTH NUT CAKE.

	Decorticated.	Undecorticated.
Moisture	9·26	8·10
Oil	5·58	8·76
*Albuminous compounds	43·43	30·50
Mucilage, sugar, and digestible fibre	31·39	27·78
Woody fibre	5·18	19·12
†Ash	5·16	5·74
	100·00	100·00
*Containing nitrogen	6·95	4·88
†Containing sand		

EARTH NUT, and husks of.

	Husks.	Nut.
Moisture	6·54	6·24
Oil	20·37	41·23
*Albuminous compounds	15·18	28·25
Gum mucilage and digestible fibre	30·39	7·16
Woody fibre	19·98	13·87
†Ash	7·54	3·25
	100·00	
*Containing nitrogen	2·43	
†Containing sand	3·34	

FLAX CHAFF.

Moisture	14·60
Oil	2·82
*Albuminous matters	4·75
Gum, sugar, &c.	8·72
Digestible fibre	18·56
Cellulose	43·12
Ash	7·43
	100·00
*Containing nitrogen	·76

GRASS. Ash of.

Potash	25·40
Lime	15·21
Magnesia	5·30
Soda	6·24
Oxide of iron	·18
Phosphoric acid	5·45
Sulphuric acid	7·08
Silicic acid	24·30
Chlorine	4·76
Carbonic acid and loss	6·08
	100·00

HEMPSEED.

Fixed oil	19·10
Resin... ..	1·60
Sugar and extractive	1·60
Gummy extract	9·00
Soluble albumen	24·70
Ligneous fibre... ..	5·00
Husk... ..	38·30
Loss	·70
	100·00

HEMP CAKE.

	1.	2.
Moisture	11·59	10·57
Oil	7·23	11·17
*Albuminous matters	33·50	29·56
Sugar, mucilage and digestible fibre	15·56	18·03
Woody fibre	23·74	24·20
†Ash	8·38	6·47
	100·00	100·00
*Containing nitrogen	5·36	4·73
†Containing sand	2·14	

HEMPSEED. Ash of.

Potash	21·67
Soda	·66
Magnesia	1·00
Lime	26·71
Phosphoric acid	34·96
Sulphuric acid... ..	·10
Silica	14·04
Peroxide of iron	·77
Chloride of sodium	·90
	100·81

HAY (Meadow). Dried at 212° Fah.

Fatty matter	2·99
*Albuminous compounds	9·88
Sugar, gum, &c.	48·09
Indigestible woody fibre	31·80
Mineral matter (ash)	7·24
	100·00
*Containing nitrogen	1·58

HAY (Ash of). Grown in meadows near Durrenbach.

Carbonic acid	7·3
Phosphoric acid	5·4
Sulphuric acid... ..	2·7
Chlorine	2·6
Lime	17·9
Magnesia	7·2
Potash	21·7
Soda	1·8
Silica... ..	31·5
Oxide of iron	·9
Loss	1·0
	100·0

HAY. Anthyllis vulneraria. Kidney vetch.

Moisture	10.46
*Organic substances soluble in water... ..	26.47
Organic substances insoluble in water	57.99
Mineral matter (ash)	5.08
	100.00
*Nitrogen	1.19

HAY (Clover). Dried at 212° Fah.

Fatty matters	3.81
*Albuminous compounds	18.96
Sugar, gum, &c.	41.27
Indigestible woody fibre	26.95
Mineral matter (ash)	9.01
	100.00
*Containing nitrogen	3.03

HAY. Made from kidney vetch.

Moisture	10.46
Oil and wax	1.18
*Soluble albuminous compounds... ..	2.87
+Insoluble albuminous compounds	4.52
Gum, sugar, and hydro-carbons readily convertible { into sugar	43.91
Cellulose	31.98
Mineral matters soluble in water	4.50
Mineral matters insoluble in water	5.8
	100.00
*Containing nitrogen	4.7
+Containing nitrogen	7.2

HAY (Meadow). Ash of.

Silica	60·1
Phosphate of lime	16·1
Phosphate of peroxide of iron	5·0
Lime	2·7
Magnesia	8·6
Sulphate of lime	1·2
“ potash... ..	2·2
Chloride of potassium	1·3
Carbonate of soda	2·0
Loss	·8
	100·0

INDIGO SEED CAKE.

Moisture	11·91
Oil	4·01
*Albuminous matters	18·15
Mucilage, sugar, &c.	47·96
Woody fibre	11·88
†Ash	6·09
	100·00
*Containing nitrogen	2·90
†Containing sand	·99

LUPINES. (Yellow, in green state.)

Water	89·20
Soluble organic matters	3·29
Soluble mineral matters	·61
Insoluble organic matters	6·71
Insoluble mineral matters (crude fibre 6·90)	·19
	100·00

Detailed composition.

Water	89·20
Oil	·37
*Soluble albuminous compounds	1·37
Soluble mineral matters	·61
†Insoluble albuminous compounds	1·01
Sugar, gum, bitter extractive matter and digestible fibre	3·96
Indigestible woody fibre	3·29
Insoluble mineral matters	·19
	100·00
*Containing nitrogen	·22
†Containing nitrogen	·16

LOCUST MEAL.

Moisture	12·61
Oil	1·08
Albuminous matters	5·87
Sugar... ..	44·30
Pectin, mucilage, &c.	26·13
Cellulose	7·14
Ash	2·87
	100·00

LINSEED.

Moisture	7·50
Oil	34·01
Albuminous compounds	24·44
Sugar	
Mucilage, starch, woody fibre, &c.	30·72
Mineral matters	3·33
	100·00

LINSEED (Pure).

	Bombay.	Black Sea.	Alexan- dria.
Moisture	8·01	10·40	5·47
Oil	38·21	30·78	35·73
* Albuminous compounds, } and flesh-forming matters }	21·81	26·62	19·31
Mucilage, sugar, and diges- } tible fibre }	20·85	17·30	26·22
Woody fibre	8·36	11·40	8·70
Ash	2·76	3·50	4·57
	100·00	100·00	100·00
*Containing nitrogen	3·49	4·26	3·09

LINSEED CAKES.

	1. English.	2. American.
Moisture	12·70	11·56
Oil	11·32	11·56
*Albuminous compounds	28·21	26·37
Mucilage and other carbonaceous } principles	29·42	28·47
+Phosphates of lime and magnesia } and other mineral constituents of } food	4·84	—
Woody fibre	12·46	13·92
Insoluble mineral matters	1·05	8·12
	100·00	100·00
*Containing nitrogen	4·50	4·22
+Containing phosphoric acid and } Potash	1·28	—
	1·34	—

LINSEED CAKES. Pure and rich in albuminous compounds.

	3. American.	4. English.
Moisture	9·90	10·26
Oil	11·62	12·28
*Albuminous matters	35·31	31·94
Mucilage, sugar and digestible fibre ...	25·55	30·22
Woody fibre	11·94	8·58
+Ash	5·68	6·72
	100·00	100·00
*Containing nitrogen	5·65	5·11
+Containing sand	·78	1·82

LINSEED CAKES. Pure, but poor in albuminous matters.

	5. American.	6. English.
Moisture	11·98	11·28
Oil	12·14	10·35
*Albuminous matters	25·12	23·50
Mucilage, sugar, and digestible fibre...	31·01	35·51
Woody fibre	11·74	11·80
+Ash	8·01	7·56
	100·00	100·00
*Containing nitrogen	4·02	3·76
+Containing sand	2·66	2·32

LUCERNE.

Moisture ..	73.41
Albuminous compounds ..	4.40
Carbonaceous principles and woody fibre...	19.11
Mineral matters ..	3.08
	100.00

MANGOLD. Yellow globe.

Water ..	87.440
Sugar, gum, pectin ..	7.408
Soluble mineral matters ..	1.356
*Soluble albuminous compounds ..	.956
†Insoluble albuminous compounds ..	.144
Cellular fibre, &c. ...	2.583
Insoluble mineral matters ..	.113
	100.000
*Containing nitrogen ..	.153
†Containing nitrogen ..	.023

MANGOLD. Pulp.

Water ..	91.84
*Soluble protein compounds ..	.64
Gum, mucilage, little sugar, and free acid ..	1.98
Soluble mineral matter... ..	.38
†Insoluble protein compounds ..	.69
Woody fibre	3.99
Insoluble mineral matter ..	.48
	100.00
*Containing nitrogen ..	.09
†Containing nitrogen ..	.11

MELON. Cattle.

Water ..	90.66
*Flesh-forming matters... ..	1.66
Sugar, mucilage, &c.	5.74
Cellulose	1.17
Ash	.77
	100.00
*Containing nitrogen ..	.265

Detailed composition.

Water	...	...	...	...	...	...	...	...	92.030
*{Soluble albuminous compounds	...	...	...	...	...	...	...	...	.619
{Insoluble albuminous compounds	...	...	...	...	...	...	...	...	.156
Sugar and mucilage	...	...	...	...	...	...	...	...	4.661
Woody fibre	...	...	...	...	...	...	...	...	1.914
Soluble mineral matters	...	...	...	...	...	...	...	...	.540
Insoluble mineral matters	...	...	...	...	...	...	...	...	.080
									100.000
*Total nitrogen	...	...	...	...	...	...	...	...	.124

MEAT POWDER. Refuse from the manufacture of
 "Extract of Meat."

Moisture	...	...	...	...	...	...	...	...	5.57
Fat	...	...	...	...	...	...	...	...	15.20
*Nitrogenous matter (fibrine)	...	...	...	...	...	...	...	...	74.62
†Mineral matter (ash)	...	...	...	...	...	...	...	...	4.61
									100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	11.77
† " silica	...	...	...	...	...	...	...	...	.55
Phosphate of lime	...	...	...	...	...	...	...	...	1.01
Alkaline salts	{	Potash	...	...	...	...	...	...	.72
		Chloride of sodium	...	...	...	...	...	...	.99
		Phosphoric acid	...	...	...	...	...	...	1.34

OIL BEAN CAKE. Chinese.

Moisture	...	...	...	...	...	...	...	...	8.30
Oil	...	...	...	...	...	...	...	...	6.67
*Albuminous or flesh-forming matters	...	...	...	...	...	...	...	...	39.25
Starch, gum and digestible fibre...	...	...	...	...	...	...	...	...	34.95
Woody fibre (cellulose)...	...	...	...	...	...	...	...	...	5.03
Mineral matters (ash)	...	...	...	...	...	...	...	...	5.80
									100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	6.28

OLIVE CAKE.

	1.	2.
Moisture	17.11	13.41
Oil	11.29	3.10
*Flesh-forming matters...	3.50	6.01
Mucilage, sugar, &c. ...	27.18	30.66
Woody fibre	33.19	38.24
Ash	7.73	8.58
	100.00	100.00
*Containing nitrogen	.56	.96

STRAW (Oat).**Detailed analysis.**

Water	13.70
Oil	1.69
*Albumen and other soluble protein compounds ...	.44
Mucilage, extractive matters soluble in water...	7.60
Digestible fibre	29.27
Soluble inorganic matter	2.76
†Insoluble protein compounds	2.31
Indigestible woody fibre	39.57
Insoluble inorganic matter	2.66
	100.00
*Containing nitrogen	.07
† " "	.57

OAT HUSKS.

Moisture	11.98
Oil	.36
*Albuminous matters	1.25
Mucilage, sugar, &c.	53.63
Woody fibre	28.48
†Ash	4.30
	100.00
*Containing nitrogen	.20
† " " sand soluble	3.64

OATS. Exclusive of husk.								Northumber- land.	Ayr- shire.
Starch	...	...	...	...	...	...	...	65·24	64·80
Sugar	...	...	...	...	...	...	...	4·51	2·58
Gum	...	...	...	...	...	...	...	2·10	2·41
Oil	...	...	...	...	...	...	...	5·44	6·97
Nitrogenous matter	...	...	...	...	...	...	...	18·69	19·01
Epidermis	...	...	...	...	...	...	...	1·18	2·39
Ash	...	...	...	...	...	...	...	2·84	1·84
								100·00	100·00

OATS. Grain.

Moisture	...	...	...	...	...	...	...	...	15·09
*Albuminous compounds	...	...	...	...	...	...	...	...	11·85
Starch, sugar, &c.	...	...	...	...	...	...	...	...	63·34
Woody fibre	...	...	...	...	...	...	...	...	7·02
†Mineral matters	...	...	...	...	...	...	...	...	2·70
									100·00
*Containing nitrogen	...	...	...	...	...	...	...	...	1·89
† " phosphoric acid	...	...	...	...	...	...	...	...	·67
" potash	...	...	...	...	...	...	...	...	·40

OATMEAL.

Water	...	...	...	...	...	...	...	...	13·09
Nitrogenous compounds	...	...	...	...	...	...	...	...	15·68
Starch, a little oil and sugar	...	...	...	...	...	...	...	...	68·17
Fibre	...	...	...	...	...	...	...	...	1·90
Mineral matter	...	...	...	...	...	...	...	...	1·16
									100·00

OATS. Ash of.

								Potato oat.	Hope- ton.
Potash	...	...	...	...	...	...	...	31·60	20·6
Soda	...	...	...	...	...	...	...	—	—
Lime	...	...	...	...	...	...	...	5·30	6·7
Magnesia	...	...	...	...	...	...	...	8·70	7·8
Oxide of iron	...	...	...	...	...	...	...	·90	·4
Sulphuric acid...	...	...	...	...	...	...	...	—	17·4
Silica	...	...	...	...	...	...	...	·90	1·3
Carbonic acid	...	...	...	...	...	...	...	—	—
Chlorides of sodium and potassium	...	...	...	...	...	...	...	·35	1·6
Phosphoric acid	...	...	...	...	...	...	...	49·20	38·5

OATS. Grain, ash of.

Carbonic acid	1·7
Sulphuric acid	1·0
Phosphoric acid	14·9
Chlorine	·5
Magnesia	7·7
Lime	3·7
Potass	12·9
Soda	—
Silica	53·3
Oxide of iron and alumina	1·3
Carbon, water and loss	3·0
	100·0

POTATO REFUSE. (Spirit factory.)

Water	96·05
Protein compounds	·79
Crude fat	·23
Crude fibre	1·40
Extractive matter (non-nitrogenous)	1·12
Ash (minus sand and carbonic acid)	·41
Potash	—
	100·00

PALM NUT.

	Meal.
Moisture	10·77
Fatty matters	13·79
*Flesh-forming matters	13·75
Mucilage, sugar, starch and digestible } fibre }	42·67
Cellulose	15·17
Ash	3·85
	100·00
*Containing nitrogen	2·20

PALM NUT.

	Shells.	Cake.
Moisture	10·12	11·91
Oil	1·51	7·48
*Albuminous or flesh-forming matters	2·93	18·25
Digestible fibre, starch, &c.	16·37	41·16
Woody fibre	67·90	17·90
Ash	1·17	3·30
	100·00	100·00
*Containing nitrogen	·47	2·92

POPPY CAKE.

Moisture	11·63
Oil	5·75
*Albuminous matters	31·46
Mucilage, sugar, &c.	38·18
†Ash	12·98
	100·00
*Containing nitrogen	5·11
† “ sand	7·58

PEA SHELLS.

Moisture	13·68
Oil	1·09
*Albuminous compounds	7·12
Mucilage, starch and fibre	21·65
Woody fibre	53·71
Ash	2·75
	100·00
*Containing nitrogen	1·14

PEA STRAW.

Water	...	...	...	...	...	...	...	...	16.02
Fatty matters	...	...	...	...	...	...	...	...	2.34
*Albuminous matters	...	...	...	...	...	...	...	...	8.86
Gum and carbonaceous principles	..	...	...	...	...	...	...	...	25.06
Woody fibre	...	...	...	...	...	...	...	...	42.79
†Mineral matters	...	...	...	...	...	...	...	...	4.93
									100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	1.41
† “ phosphoric acid	...	...	...	...	...	...	...	...	.41
“ potash	...	...	...	...	...	...	...	...	.59

RAPE. Green.

Water	...	...	...	...	...	...	...	...	87.050
Nitrogenous substances, flesh-forming principles	...	...	...	...	...	...	...	...	3.133
Woody fibre	...	...	...	...	...	...	...	...	3.560
Fatty matter	...	...	...	...	...	...	...	...	.649
Respiratory substances	...	...	...	...	...	...	...	...	4.000
Inorganic matters (ash)	...	...	...	...	...	...	...	...	1.608
									100.000

RAPE CAKE.

									No. 1.
Moisture	...	...	...	...	...	...	...	...	11.28
Oil	...	...	...	...	...	...	...	...	11.20
*Albuminous compounds	...	...	...	...	...	...	...	...	30.54
Non-nitrogenous matters	...	...	...	...	...	...	...	...	28.45
†Phosphates and other mineral constituents of food	...	...	...	...	...	...	...	...	5.60
Woody fibre	...	...	...	...	...	...	...	...	11.51
Insoluble matter	...	...	...	...	...	...	...	...	1.42
									100.00
*Containing nitrogen	...	...	...	...	...	...	...	...	5.66
† “ phosphoric acid	...	...	...	...	...	...	...	...	1.17
“ potash	...	...	...	...	...	...	...	...	1.54

RAPE CAKES.

	2. English.	3. Green German.	4. Indian.
Moisture	9·14	10·82	12·07
Oil	10·84	8·72	10·31
*Albuminous compounds ...	28·31	33·81	34·12
Mucilage, sugar and digesti- ble fibre... .. }	25·84	28·06	29·15
Woody fibre	11·16	11·49	7·38
†Ash	14·71	7·10	6·97
	100·00	100·00	100·00
*Containing nitrogen	4·53	5·41	5·46
† " sand	6·15	·32	·75

RYE. Green.

Water	75·423
Flesh-forming substances	2·705
Woody fibre	10·488
Fatty matters	·892
Respiratory substances	9·134
Ash	1·358
	100·000

STRAW. Rye.

Potash with silicic acid... ..	16·09
Sulphate of potash... ..	1·75
Chloride of potassium	·25
Chloride of sodium	·56
Lime silicate	7·62
Magnesia	1·92
Phosphate of lime	2·50
Phosphate of magnesia	1·28
Phosphate of oxide of iron	3·20
Silicic acid	63·89
Carbonaceous matter	·94
	100·00

RYE GRASS. Italian.

Water	75·61
Fatty matters	·80
Albuminous matters	2·45
Cellular tissue... ..	14·11
Woody fibre	4·82
Mineral matters	2·21
	100·00

SESAME CAKE.

Moisture	8·06
Oil	11·34
*Albuminous matters	36·87
Mucilage, sugar, &c.	25·05
Woody fibre	8·14
Ash	10·54
	100·00
*Containing nitrogen	5·90

SORGHUM SEED.

Moisture	12·32	12·02
Oil	2·37	3·80
*Albuminous compounds, flesh-forming matters	7·75	7·19
Starch, sugar and digestible fibre	73·06	71·82
Cellulose	3·20	3·50
Mineral matter	1·30	1·67
	100·00	100·00
*Containing nitrogen	1·24	1·15

SPURRY SEED.

Moisture	12·53
Oil	10·19
*Nitrogenous compounds	5·62
Starch and digestible fibre	59·13
Woody fibre	8·86
Ash	3·67
	100·00
*Containing nitrogen	·90

SARRADELLA SEED.

Water	10·0
Albuminoids	22·3
Non-nitrogenous extractive matters	37·2
Fat	6·0
Crude fibre	21·0
Ash	3·5
	100·00

NIGER SEED and CAKE.

	Cake.	Seed.
Moisture	12·56	7·02
Oil	5·38	43·22
*Albuminous compounds, flesh-forming } matters... ..	32·81	19·37
Mucilage, sugar and digestible fibre ...	20·31	12·37
Woody fibre	21·08	14·33
†Ash	7·86	3·48
	100·00	99·79
*Containing nitrogen	5·25	
† “ sand	1·20	

SUNFLOWER SEED.

Water	6·19
Oil	34·74
Albuminous compounds	13·29
Gum, sugar, &c.	13·95
Fibre... ..	28·48
Ash	3·35
	100·00

TEEL, or SESAMUM SEED.

Water	4·54
Oil	37·02
Albuminous compounds	18·87
Gum, sugar, &c.	19·13
Fibre... ..	11·71
Ash	8·73
	100·00

SAINTFOIN.

Water	...	...	...	...	...	...	...	...	77.32
Albuminous compounds	...	...	...	...	...	...	...	...	3.52
Carbonaceous principles and woody fibre	...	...	...	...	...	...	...	...	17.43
Mineral matters	...	...	...	...	...	...	...	...	1.73
									100.00

VETCH. *Anthyllis vulneraria*.

									Hay.
Moisture	...	...	...	...	...	...	...	10.46	
Oil and wax	...	...	...	...	...	...	...	1.18	1.32
Soluble albuminous compounds	...	...	...	...	...	...	...	2.87	8.25
Insoluble	“	“	“	“	“	“	“	4.52	
Gum, sugar, &c.	...	...	...	...	...	...	...	43.91	49.03
Cellulose	...	...	...	...	...	...	...	31.98	35.72
Mineral matters soluble	...	...	...	...	...	...	...	4.50	5.68
“ “ insoluble	...	...	...	...	...	...	...	.58	
								100.00	100.00

STRAW OF WHEAT.

Water	...	...	...	...	...	...	...	...	13.33
Oil	...	...	...	...	...	...	...	...	1.74
*Albumen and other soluble protein compounds	...	...	...	...	...	...	...	...	1.28
Sugar, mucilage, extractive matter, &c., soluble	}								4.26
in water									
Digestible fibre	...	...	...	...	...	...	...	...	19.40
Soluble inorganic matter	...	...	...	...	...	...	...	...	1.13
†Insoluble protein compounds	...	...	...	...	...	...	...	...	1.65
Indigestible woody fibre	...	...	...	...	...	...	...	...	54.13
Insoluble inorganic matter	...	...	...	...	...	...	...	...	3.08
									100.00
*Nitrogen...	...	...	...	...	...	...	...	...	206
+ “	...	...	...	...	...	...	...	...	264

WHEAT STRAW. Ash of.

Carbonic acid	—
Sulphuric acid... ..	1·0
Phosphoric acid	3·1
Chlorine	·6
Magnesia	5·0
Lime	8·5
Potash	9·2
Soda	·3
Silica	67·6
Oxide of iron and alumina	1·0
Carbon, water and loss	3·7

100·0

STUBBLE. Wheat.

Water	17·66
Oil	·42
*Albuminous compounds	2·94
Extractive matters soluble in water	5·01
Crude woody fibre	71·04
Mineral matter (ash)	2·93

100·00

*Containing nitrogen 47

WHEAT STRAW CHAFF.

Moisture	13·33
Oil and fatty matters	1·74
Flesh-forming matters	2·93
Gum, sugar, &c.	4·26
Digestible fibre	19·40
Cellulose	54·13
Insoluble matter (silica)	3·08
Saline soluble mineral matters	1·13

100·00

Nitrogen 47

YEAST. Compressed.

Moisture	73·19
Oil	·27
*Albuminous compounds	13·31
Gum, sugar, &c.	9·16
Cellular fibre	1·35
Ash	2·72

100·00

*Containing nitrogen 2·13

M

DIGESTIBILITY OF FOODS.

	hr. min.		hr. m.
Alcohol	1 30	Hare	3 0
Almond (sweet)	4 0	Harricots	3 0
Barley	2 0	Herring, salt	3 0
Beans	3 0	Indian corn	3 30
Beef (no bone) roasted	3 0	Lamb boiled	2 30
Beer, strong	1 30	Lard	4 30
Boiled salt beef	4 15	Lentils... ..	3 0
Bread, white	3 15	Lobster, fleshy	4 0
“ household	3 0	“ internal, soft	3 30
Buckwheat	4 0	Mackerel	2 0
Butter, fresh	3 30	Mushrooms	4 0
Cabbage	4 30	Mutton, roast	3 0
Calves liver	3 30	Nuts, fresh... ..	4 0
Carrots	4 0	Oatmeal	3 0
Caviare	3 0	Olive Oil	3 30
Cheese, Brie	3 30	Oysters, raw	2 55
“ Gruyère	3 30	“ stewed... ..	3 0
“ Chester	3 30	Parsnips	4 0
“ Parmesan	4 0	Peas, dry	2 30
“ Roquefort	3 0	Plums, dry... ..	3 30
“ Cream	3 30	Pork, roast... ..	5 15
“ Dutch	3 30	Potatoes, roast	2 30
“ Neufchatel	3 30	“ boiled	3 30
Chestnuts	4 0	Rabbit	3 0
Chicken	2 30	Rice	1 0
Chocolate	2 30	Sago	1 45
Codfish (salt)	3 30	Salmon trout	1 30
Coffee	2 0	Sardines, in oil	3 30
Cow's milk... ..	2 15	Sheep's kidneys... ..	3 45
Eels	2 30	Sole	1 30
Eggs, whipped	1 30	Spirits of wine	1 30
“ raw	2 0	Sucking pig, roast	2 30
“ boiled	3 0	Tea	2 0
Figs, dried	3 0	Truffles	4 0
Foie-gras	3 30	Turnips	2 30
Fowls, ducks, &c.	3 0	Turkey, boiled	2 25
Flour, white	3 0	Veal	4 0
Flour, rye	3 30	Venison	1 35
Fresh fried beef... ..	4 0	Wheat, hard	3 15
Gelatine	2 30	Wheat, soft	3 0
Goat's milk... ..	2 0	Wine	2 0
Gooseberries	3 0	Wild goose... ..	3 0
Goose	3 30		

SEAWEEDS. Ash in 100 parts of plants.**" POLYSIPHONIA ELONGATA."**

Potash	...	...	...	...	...	...	...	...	...	3.43
Soda	...	...	...	...	...	...	...	...	...	.52
Magnesia	...	...	...	...	...	...	...	...	...	2.32
Lime	...	...	...	...	...	...	...	...	...	.69
Phosphoric acid	...	...	...	...	...	...	...	...	...	.26
Sulphuric acid...	...	...	...	...	...	...	...	...	...	4.63
Silica	...	...	...	...	...	...	...	...	...	.48
Chloride of sodium	...	...	...	...	...	...	...	...	...	2.22

The seaweeds were analysed by Forchamoner.

" SARGASSUM VULGARE."

Potash	...	...	...	...	...	...	...	...	...	5.00
Soda	...	...	...	...	...	...	...	...	...	1.02
Lime	...	...	...	...	...	...	...	...	...	4.39
Magnesia	...	...	...	...	...	...	...	...	...	1.09
Phosphoric acid	...	...	...	...	...	...	...	...	...	.45
Sulphuric acid...	...	...	...	...	...	...	...	...	...	3.61
Chloride of sodium...	...	...	...	...	...	...	...	...	...	7.09

" SARGASSUM COCCIFERUM."

Potash	...	...	...	...	...	...	...	...	...	.09
Soda	...	...	...	...	...	...	...	...	...	.81
Magnesia	...	...	...	...	...	...	...	...	...	.68
Lime	...	...	...	...	...	...	...	...	...	5.69
Phosphoric acid	...	...	...	...	...	...	...	...	...	.38
Sulphuric acid...	...	...	...	...	...	...	...	...	...	2.22
Peroxide of iron	...	...	...	...	...	...	...	...	...	.19

" HALIDRY'S SILIQUOSA."

Sulphuric acid...	...	...	...	...	...	...	...	...	...	3.44
Chloride of sodium	...	...	...	...	...	...	...	...	...	4.70

" FURCELLARIA FASTIGATA."

Potash	...	...	...	...	...	...	...	...	...	3.83
Soda	...	...	...	...	...	...	...	...	...	4.44
Magnesia	...	...	...	...	...	...	...	...	...	1.98
Lime	...	...	...	...	...	...	...	...	...	1.40
Phosphoric acid	...	...	...	...	...	...	...	...	...	.39
Sulphuric acid...	...	...	...	...	...	...	...	...	...	5.85

"PADINA PAVONIA."

Lime	25.29
Phosphoric acid	3.93
Sulphuric acid... ..	4.46

"DURVILLOEA UTILIS."

Potash	2.46
Soda	1.30
Magnesia	.17
Lime	2.87
Phosphoric acid	.55
Sulphuric acid... ..	4.04
Silica... ..	—
Chloride of sodium... ..	6.80

"LAMINARIA LATIFOLIA."

Potash	—
Soda	—
Magnesia	.78
Lime	1.61
Phosphoric acid	.81
Sulphuric acid... ..	1.45
Silica... ..	.08
Chloride of sodium... ..	2.24
Chloride of potassium	4.24

"LAMINARIA DIGITATA."

Potash	4.24
Lime	2.50
Phosphoric acid	.79
Sulphuric acid... ..	5.05
Silica... ..	.11
Chloride of sodium... ..	7.90

"ECKLONIA BUCCINALIS."

Potash	2.67
Soda	.94
Magnesia	.73
Lime	3.11
Phosphoric acid	.43
Sulphuric acid	1.84
Silica... ..	.48
Chloride of sodium	2.15

" IRIDCEA EDULIS."

Potash	...	...	...	...	...	...	...	...	1·19
Soda	...	...	...	...	...	...	...	...	·78
Lime	...	...	...	...	...	...	...	...	1·05
Phosphoric acid	...	...	...	...	...	...	...	...	·65
Sulphuric acid...	...	...	...	...	...	...	...	...	1·28
Chloride of sodium...	...	...	...	...	...	...	...	...	·08

" DELESSERIA SANGUINEA."

Potash	...	...	...	...	...	...	...	...	1·73
Soda	...	...	...	...	...	...	...	...	2·69
Magnesia	...	...	...	...	...	...	...	...	·75
Lime	...	...	...	...	...	...	...	...	·51
Phosphoric acid	...	...	...	...	...	...	...	...	·27
Sulphuric acid...	...	...	...	...	...	...	...	...	5·13

" CHONDRUS CRISPUS."

Potash	...	...	...	...	...	...	...	...	3·57
Soda	...	...	...	...	...	...	...	...	3·86
Magnesia	...	...	...	...	...	...	...	...	2·34
Lime	...	...	...	...	...	...	...	...	1·48
Phosphoric acid	...	...	...	...	...	...	...	...	·08
Sulphuric acid...	...	...	...	...	...	...	...	...	8·50

" CHONDRUS PLICATUS."

Potash	...	...	...	...	...	...	...	...	·76
Soda	...	...	...	...	...	...	...	...	·91
Magnesia	...	...	...	...	...	...	...	...	·70
Lime	...	...	...	...	...	...	...	...	1·38
Phosphoric acid	...	...	...	...	...	...	...	...	·44
Sulphuric acid...	...	...	...	...	...	...	...	...	1·64
Chloride of sodium...	...	...	...	...	...	...	...	...	1·98

SEAWEEDS. Ashes per cent.

		Fucus digitatus.	Fucus vesiculosus.
Potash	...	20·66	13·01
Soda	...	7·65	9·54
Magnesia	...	6·86	6·12
Lime	...	10·94	8·36
Phosphoric acid	...	2·36	1·16
Sulphuric acid...	...	12·33	24·06
Silica	...	1·44	1·15
Peroxide of iron	...	·57	·28
Chloride of sodium	...	26·18	21·45

SEAWEEEDS. Ashes per cent.

	Fucus nodosus.	Fucus serratus.
Potash	9.13	3.98
Soda	14.33	18.67
Magnesia	9.91	10.29
Lime	11.60	14.41
Phosphoric acid	1.38	3.89
Sulphuric acid... ..	24.20	18.59
Silica	1.09	.38
Peroxide of iron	.26	.30
Chloride of sodium... ..	18.28	16.56

URINE OF THE HARE.

Urea	8.54
Hippuric acid	—
Mucus	—
Salts insoluble in water	12.64
Salts soluble in water	23.70
Extractive matter soluble in alcohol	9.58
Extractive matter soluble in water	32.68
Water	912.86
	1000.00

URINE OF A BOY, Eight years old.

Water	948.00
Urea	19.20
Uric acid	.23
Chloride of sodium	3.80
Alkaline sulphates... ..	3.21
Phosphates of soda and ammonia	.52
Phosphates of lime and magnesia	.85

URINE OF A GIRL, 19 years of age.

Water	941.00
Urea	24.59
Uric acid	.63
Chloride of sodium	.80
Alkaline sulphates... ..	7.85
Phosphates of soda and ammonia	2.43
Phosphates of lime and magnesia	.62

URINE OF A WOMAN, 28 years of age.

Water	...	...	...	...	...	...	...	...	953·00
Urea	...	...	...	...	...	...	...	...	13·10
Uric acid	...	...	...	...	...	...	...	...	·24
Chloride of sodium	...	...	...	...	...	...	...	...	·17
Alkaline sulphates...	...	...	...	...	...	...	...	...	2·25
Phosphates of soda and ammonia	...	...	...	...	...	...	...	...	1·15
Phosphates of lime and magnesia	...	...	...	...	...	...	...	...	·46

URINE OF A MAN.

	Aged 20 yrs.	33 yrs.	35 yrs.
Water	930·00	928·30	959·50
Urea	30·00	27·80	13·78
Uric acid	1·12	1·21	·24
Chloride of sodium...	4·60	3·76	1·63
Alkaline sulphates...	4·42	4·53	2·92
Phosphates of soda and ammonia	·39	·47	·25
Phosphates of lime and magnesia	·41	·93	·27
	970·94	967·00	978·59

URINE. Human.

Urea	...	...	...	...	...	...	...	30·10
Free lactic acid, lactate of ammonia, extract of } flesh, extractive matter	...	...	...	...	...	...	...	17·14
Uric acid	...	...	...	...	...	...	...	1·00
Mucus of the bladder	...	...	...	...	...	...	...	·32
Sulphate of potash	...	...	...	...	...	...	...	3·71
Sulphate of soda	...	...	...	...	...	...	...	3·16
Phosphate of soda	...	...	...	...	...	...	...	2·94
Biphosphate of ammonia	...	...	...	...	...	...	...	1·65
Chloride of sodium	...	...	...	...	...	...	...	4·45
Sal ammoniac	...	...	...	...	...	...	...	1·50
Phosphate of lime and magnesia...	...	...	...	...	...	...	...	1·00
Silica	...	...	...	...	...	...	...	·03
Water	...	...	...	...	...	...	...	933·00
								1000·00

URINE FROM VEGETABLE FOOD.

Water	...	...	...	...	...	...	...	...	...	934.92
Solid residue	...	...	...	...	...	...	...	...	...	65.08
Urea	...	...	...	...	...	...	...	...	...	25.69
Uric acid	...	...	...	...	...	...	...	...	...	.89
Lactic acid, mucus and extractive matter	...	...	...	...	...	...	...	...	...	22.62
Chlorides of sodium and ammonium	...	...	...	...	...	...	...	...	...	3.71
Alkaline sulphates	...	...	...	...	...	...	...	...	...	7.23
Phosphates of soda	...	...	...	...	...	...	...	...	...	3.74
Phosphates of lime and magnesia	...	...	...	...	...	...	...	...	...	1.11

URINE FROM ANIMAL FOOD.

Water	...	...	...	...	...	...	...	...	...	933.27
Solid residue	...	...	...	...	...	...	...	...	...	66.73
Urea	...	...	...	...	...	...	...	...	...	41.65
Uric acid	...	...	...	...	...	...	...	...	...	1.18
Lactic acid, mucus and extractive matter	...	...	...	...	...	...	...	...	...	6.62
Chlorides of sodium and ammonium	...	...	...	...	...	...	...	...	...	3.46
Alkaline sulphates	...	...	...	...	...	...	...	...	...	7.08
Phosphate of soda	...	...	...	...	...	...	...	...	...	4.04
Phosphate of lime and magnesia	...	...	...	...	...	...	...	...	...	2.70

MINERAL SUBSTANCES.

ÆRINITE, a new mineral.

Silica	...	...	...	...	...	...	...	...	...	48·528
Alumina	...	...	...	...	...	...	...	...	...	7·551
Peroxide of iron and protoxide of iron	...	...	...	...	...	...	...	...	...	32·785
Manganic oxide	...	...	...	...	...	...	...	...	...	1·167
Lime	...	...	...	...	...	...	...	...	...	3·586
Magnesia	...	...	...	...	...	...	...	...	...	·900
Water	...	...	...	...	...	...	...	...	...	6·158
										100·675

ALBITE.

Silica	...	...	...	...	...	...	...	...	...	68·5
Alumina	...	...	...	...	...	...	...	...	...	19·3
Peroxide of iron and manganese	...	...	...	...	...	...	...	...	...	·3
Lime	...	...	...	...	...	...	...	...	...	·7
Soda	..	...	...	...	...	...	...	...	...	9·1

ALLOPHANE.

Alumina	...	...	...	..	...	...	...	...	...	29·2
Silica	...	...	...	...	...	...	...	...	...	21·9
Water	...	...	...	...	...	...	...	...	...	44·2
Mixed clay	...	...	...	...	...	...	...	...	...	4·7

ALMANDINE or GARNET.

Silica	...	...	...	...	...	...	...	...	...	42·50
Alumina	...	...	...	...	...	...	...	...	...	19·15
Protoxide of iron	...	...	...	...	...	...	...	...	...	33·60
Protoxide of manganese	...	...	...	...	...	...	...	...	...	5·50

MAGNESIAN GARNET.

Silica	...	...	...	...	...	...	...	...	...	35·8
Alumina	...	...	...	...	...	...	...	...	...	18·1
Protoxide of iron	...	...	...	...	...	...	...	...	...	14·9
Protoxide of manganese	...	...	...	...	...	...	...	...	...	31·0

ANALCINE.

Silica	...	...	...	...	...	...	...	...	...	55·1
Alumina	...	...	...	...	...	...	...	...	...	23·0
Soda	...	...	...	...	...	...	...	...	...	13·5
Water	...	...	...	...	...	...	...	...	...	8·3

ANDALUSITE.

Silica	...	...	...	...	...	...	...	...	...	36·5
Alumina	...	...	...	...	...	...	...	...	...	60·5
Peroxide of iron	...	...	...	...	...	...	...	...	...	4·0

APOPHYLLITE.

Silica	...	...	...	...	...	...	...	...	...	51·9
Lime	...	...	...	...	...	...	...	...	...	25·2
Potash	...	...	...	...	...	...	...	...	...	5·1
Water	...	...	...	...	...	...	...	...	...	16·0

AXINITE.

Silica	...	...	...	...	...	...	...	...	...	45·00
Alumina	...	...	...	...	...	...	...	...	...	19·00
Lime	...	...	...	...	...	...	...	...	...	12·50
Peroxide of iron	...	...	...	...	...	...	...	...	...	12·25
Peroxide of manganese	...	...	...	...	...	...	...	...	...	9·00
Boracic acid	...	...	...	...	...	...	...	...	...	2·00
Magnesia	...	...	...	...	...	...	...	...	...	·20

ASBESTOS.

	1.	2.	3.
Silica	43·50	43·25	40·95
Magnesia	40·00	33·85	34·70
Oxide of iron	2·08	10·90	10·05
Alumina	·40		1·30
Water	13·80	7·00	12·00
Loss	·22	5·00	1·00
	100·00	100·00	100·00

SODA ALUM.

	1.	2.	3.
Soda	6·29	6·48	6·67
Alumina	10·19	10·75	11·00
Sulphuric acid...	35·10	34·00	34·32
Water	48·22	49·00	48·01

AMMONIA ALUM.

	1.	2.	3. Theory.
Ammonia	—	—	3·75
Alumina	11·906	11·24	11·34
Sulphuric acid...	36·042	35·90	35·29
Water	—	—	49·62

ALUM (CHINESE).

Sulphuric acid...	...	...	34·06
Alumina	...	...	11·38
Potash	...	...	10·44
Water	...	...	43·12
Loss	...	...	1·00

ALUM EARTH.

	1.	2.
Alumina	16·00	10·90
Silica	40·00	45·40
Magnesia	·25	—
Sulphur	2·85	3·94
Carbon	19·45	5·95
Protoxide of iron	6·40	5·50
Protoxide of manganese	—	·60
Protosulphate of iron	1·80	5·73
Sulphate of alumina	—	1·20
Sulphate of lime	1·50	1·71
Sulphate of potassa	·50	1·75
Chloride of potassium	·50	·35
Sulphuric acid...	—	·47
Water	10·75	16·60
	100·00	100·10

ALUM. Residue from the Ores after burning and washing out the alum. "Campsie."

Silica	...	...	...	...	...	...	...	...	38.40
Alumina	..	...	...	...	...	...	...	...	12.70
Sesquioxide of iron	...	...	...	...	...	...	...	...	20.80
Oxide of manganese	...	...	...	...	...	...	...	...	traces
Lime	...	...	...	...	...	...	...	...	2.07
Magnesia	...	...	...	...	...	...	...	...	2.00
Potash	...	...	...	...	...	...	...	...	1.00
Sulphuric acid	...	...	...	...	...	...	...	...	10.76
Water	...	...	...	...	...	...	...	...	12.27
									100.00

ALUMINOUS SULPHATE OF IRON. "Campsie."

	1.	2.	3.
Sulphuric acid	34.40	30.90	35.600
Protoxide of iron	12.00	20.70	13.560
Alumina	8.80	5.20	7.127
Magnesia	.80		
Water	44.00	43.20	43.713
100.00		100.00	100.00

POTASS ALUM.

	1.	2.	3.
Potash	9.86	10.02	10.40
Alumina	11.09	12.53	10.50
Sulphuric acid	32.85	26.04	30.52
Water	46.20	51.41	48.58
100.00		100.00	100.00

ALUM STONE.

	Tolfa.	Bereguzaz.	Montione.	Mont d'or.
Silica	56.5	62.3	—	28.4
Alumina	19.0	17.5	40.0	31.8
Sulphuric acid	16.5	12.5	35.6	27.0
Potash	4.0	1.0	13.8	5.8
Water	3.0	5.0	10.0	3.7
Sesquioxide of iron	—	—	—	1.4
Loss	1.0	1.7	.6	1.9
100.0		100.0	100.0	100.0

ALUM SHALES.

	1.	2.	3.
Carbonaceous matters	41·10	27·92	34·20
Silica	44·02	51·32	50·21
Sesquioxide of iron	6·23	8·40	·42
Alumina	5·60	7·62	5·21
Magnesia	·32	·26	·53
Oxide of manganese	·12	traces	traces
Sulphur	1·25	2·89	1·72
Sulphate of lime	traces	traces	traces
Loss	1·36	1·59	7·71
	100·00	100·00	100·00

ALUM SHALE.

Sesquisulphate of alumina	2·68
Potassa alum	·47
Sulphate of iron	·95
Sulphate of lime	1·70
Silica	10·32
Alumina	9·21
Magnesia	traces
Sesquioxide of iron	2·30
Oxide of manganese	·31
Sulphur	7·13
Water	33·90
Carbon, &c.	31·03
	100·00

ALUMINA. Crude Sulphate of.

	1.	2.
Silica	41·85	39·05
Alumina and traces of iron	18·40	25·55
Sulphuric acid... ..	4·45	8·47
Sulphate of lime	4·01	traces
Water	29·53	27·50
Loss	1·76	—
	100·00	

SULPHATE OF ALUMINA. Native from Peru.

Sulphuric acid... ..	35·56
Alumina	15·88
Water	48·56
Chlorine, silica and oxide of iron	traces
	100·00

ACTINOLITE.

Silica	...	...	...	...	...	...	...	...	...	59·75
Magnesia	...	...	...	...	...	...	...	...	...	21·10
Lime	...	...	...	...	...	...	...	...	...	14·25
Protoxide of iron	...	...	...	...	...	...	...	...	...	3·90
Protoxide of manganese	...	...	...	...	...	...	...	...	...	·30
Hydrofluoric acid	...	...	...	...	...	...	...	...	...	·80
										100·10

AGALMATOLITE.

Silica	...	...	...	...	...	...	...	...	...	55·00
Alumina	...	...	...	...	...	...	...	...	...	30·00
Potash	...	...	...	...	...	...	...	...	...	7·00
Water	...	...	...	...	...	...	...	...	...	3 to 5·00
Oxide of iron	...	...	...	...	...	...	...	...	...	traces

AUGITE.

Silica	...	...	...	...	...	...	...	...	...	54·10
Lime	...	...	...	...	...	...	...	...	...	23·50
Magnesia	...	...	...	...	...	...	...	...	...	11·50
Protoxide of iron	...	...	...	...	...	...	...	...	...	10·00
Protoxide of manganese	...	...	...	...	...	...	...	...	...	·60
										99·70

ANDREWSITE.

							1.	2.
Ferric oxide	...	...	...	...	...	...	44·639	73·917
Alumina	...	...	...	...	...	...	·916	
Ferrous oxide	...	...	...	...	...	...	7·109	
Cupric acid	...	...	...	...	...	...	10·857	traces
Phosphoric acid	...	...	...	...	...	...	26·088	12·280
Water	...	...	...	...	...	...	8·791	7·847
Manganous oxide	...	...	...	...	...	...	·597	4·309
Lime	...	...	...	...	...	...	·094	
Silica	...	...	...	...	...	...	·493	1·485
							99·584	

AMMONIA. Uimate of.

Moisture	11·59
*Organic matter and ammoniacal salts	75·94
Oxides of iron and alumina and traces of potash ...	2·52
Carbonate of lime	2·22
Alkalies and magnesia	1·26
Sand	6·47

100·00

*Containing nitrogen	11·93
Equal to ammonia	14·49

AMMONIA. Sulphate of.

Sulphuric acid... ..	54·66
Ammonia	14·24
Water	31·10

100·00
AMMONIA. Carbonate.

Carbonic acid	45·00
Ammonia	43·00
Water	12·00

100·00
AMMONIA. Chloride of.

Hydrochloric acid	49·55
Ammonia	31·95
Water	18·50

100·00
APATITE. Norwegian.

Moisture, driven off at 212° Fahrenheit	·24
Water of combination	·66
Lime	45·12
Chloride of calcium	2·53
Magnesia	·74
Oxide of iron	1·29
Alumina	1·53
Potash	·36
Sulphuric acid... ..	·29
Phosphoric acid	35·69
Insoluble siliceous matter	11·62

100·07

ALALITE.

Silica	...	...	...	...	...	...	...	...	...	55.3
Lime	...	...	...	...	...	...	...	...	...	27.0
Magnesia	...	...	...	...	...	...	...	...	...	17.0
Protoxide of manganese	...	...	...	...	...	...	...	...	...	1.6
Protoxide of iron	...	...	...	...	...	...	...	...	...	2.2

AMBER.

Carbon	...	...	...	...	...	...	...	...	...	79.0
Hydrogen	...	...	...	...	...	...	...	...	...	10.5
Oxygen	...	...	...	...	...	...	...	...	...	10.5

100.0

ANHYDRITE.

Lime	...	...	...	...	...	...	...	...	...	41.2
Sulphuric acid	...	...	...	...	...	...	...	...	...	58.8

100.0

ANDESINE.

Silica	...	...	...	...	...	...	...	...	...	59.6
Alumina	...	...	...	...	...	...	...	...	...	24.2
Peroxide of iron	...	...	...	...	...	...	...	...	...	1.6
Lime	...	...	...	...	...	...	...	...	...	5.8
Magnesia	...	...	...	...	...	...	...	...	...	1.1
Potash	...	...	...	...	...	...	...	...	...	1.1
Soda	...	...	...	...	...	...	...	...	...	6.5

ALUNITE.

Sulphuric acid	...	...	...	...	...	...	...	...	...	38.5
Alumina	...	...	...	...	...	...	...	...	...	37.1
Potash	...	...	...	...	...	...	...	...	...	11.4
Water	...	...	...	...	...	...	...	...	...	13.0

100.0

AMPHIBOLE.

Silica	...	...	...	...	...	...	...	...	...	46.3
Magnesia	...	...	...	...	...	...	...	...	...	19.0
Lime	...	...	...	...	...	...	...	...	...	14.0
Alumina	...	...	...	...	...	...	...	...	...	11.5
Protoxide of iron	...	...	...	...	...	...	...	...	...	3.5
Protoxide of manganese	...	...	...	...	...	...	...	...	...	.4
Hydrofluoric acid and water	...	...	...	...	...	...	...	...	...	2.2

ATACAMITE, or Arenillo and Asurite.

		Asurite.
Oxide of copper	76·6	69·2
Hydrochloric acid	10·6	—
Water	12·8	5·2
Carbonic acid	—	25·6
	100·0	100·0

ARDENNITE.

	Light- Coloured.	Brown.
Silica	27·50	27·84
Alumina	22·76	24·22
Peroxide of iron	1·15	
Manganic oxide	30·61	26·70
Lime	1·83	2·17
Magnesia	1·38	3·01
Oxide of copper	·17	—
Vanadic acid	·53	9·20
Arsenic acid	9·33	2·76
Water	5·13	5·01
	100·39	100·91

BORACIC ACID. Crude.

Boracic acid crystallized	76·494
Water	6·557
Sulphuric acid... ..	1·322
Silicic acid	1·200
Sulphate of ammonia	8·508
„ manganese	traces
„ magnesia	2·632
„ lime	1·018
„ soda	·917
„ potassa	·369
Sesquisulphate of iron	·365
„ alumina	·320
Chloride of ammonium... ..	·298
Organic matter	traces
	100·000

N

BARYTA MICA.

Silica	49·44
Alumina	26·05
Oxide of iron	2·02
Oxide of manganese	·29
Magnesia	3·03
Baryta	5·76
Lime	1·81
Potash	7·54
Water	4·24
	100·18

BLUE. Fragment of Egyptian (antique).

Silica	70·25
Oxide of copper	16·44
Iron and alumina	2·36
Calcium carbonate	8·35
Soda	2·83
	100·23

BEAUXITE. Employed for preparation of Alumina.

	1.	2.	3.
Silica	20·7	2·8	4·8
Titanium	3·2	3·1	3·2
Ferric oxide	3·8	25·3	24·8
Alumina	58·1	57·6	55·4
Calcium carbonate	trace	·4	·2
Water	14·2	10·8	11·6
	100·0	100·0	100·0

BELL-METAL ORE.

Sulphur	25·0
Tin	34·0
Copper	36·0
Iron	2·0

BERYL.

	1.	From Elba.
Silica	66·5	70·00
Alumina	16·8	26·33
Glucina	15·5	3·31
Peroxide of iron	·6	·40
Cæsia	—	·88

BOURNONITE.

Sulphur	20·3
Antimony... ..	26·3
Lead	40·8
Copper	12·7

BUCKLANDITE.

Silica	37·0
Alumina	26·6
Lime	20·0
Protoxide of iron	13·0
Protoxide of manganese	·6
Water	1·8

BUCKOLZITE.

Silica	46·4
Alumina	52·9

BOULANGERITE.

Antimony... ..	24·1
Lead	58·0
Sulphur	18·0

BRICKS. English Quartz or Dinas Bricks.

	1.	2.
Silica	95·93	96·65
Iron oxide	·48	2·20
Alumina	1·20	
Lime	2·15	·50
Magnesia	·24	·14
Manganous oxide	trace	—

BARILLA.

	Alicante.	Cherbourg.	Spain.	Villette.
Sulphate of soda	—	22·19	15·85	20·35
Chloride of potassium	—	16·00	10·55	10·53
Chloride of sodium... ..	65·00	45·78	68·35	54·11
Carbonate of soda	2·00	9·53	traces	13·76
Sulphate of lime	—	—	1·10	—
Insoluble matters	3·00	1·50	—	—
Iodine compounds	—	traces	—	traces
Sulphate of soda	30·00	—	—	—
Water	—	5·00	4·00	1·25
Loss	—	—	·15	—
	100·00	100·00	100·00	100·00

BITUMEN.

		Crude.	Pure.	Crude.
Oily matters	20·0 }	—	—	—
Carbon	3·7 }	76·13	77·5	77·64
Hydrogen	—	9·41	9·6	7·86
Nitrogen	— }	—	12·4	1·02
Oxygen	— }	12·66	·5	8·35
Quartz, sand and mica	76·3	—	—	—
Ashes	—	1·80	—	5·13

BIOTITE.

Silica	39·9
Alumina	15·0
Peroxide of iron	7·7
Magnesia	23·7
Soda	1·1
Potash	9·1
Flourine	·9
Chlorine	·4
Water	1·3

BUSTATNITE.

Oxide of manganese	52·6
Silica	39·6
Oxide of iron	4·6
Lime and magnesia	1·5
Water	2·7

CEMENT. Trass, from Brohlthall.

Silica	...	...	...	...	...	...	...	...	11.50
Oxide of iron and traces of manganese	...	...	...	...	...	...	...	...	11.77
Alumina	...	...	...	...	...	...	...	...	17.70
Lime	...	...	...	...	...	...	...	...	3.16
Magnesia	...	...	...	...	...	...	...	...	2.15
Potash	...	...	...	...	...	...	...	...	.29
Soda	...	...	...	...	...	...	...	...	2.44
									49.01
Silica	...	...	...	...	...	...	...	...	37.44
Alumina	...	...	...	...	...	...	...	...	1.23
Oxide of iron	...	...	...	...	...	...	...	...	.57
Lime	...	...	...	...	...	...	...	...	2.25
Magnesia	...	...	...	...	...	...	...	...	.27
Potash	...	...	...	...	...	...	...	...	.08
Soda	...	...	...	...	...	...	...	...	1.12
									42.98
Water and ammonia	...	...	...	...	...	...	...	...	7.65
Loss	...	...	...	...	...	...	...	...	.36
									100.00

CEMENT. Roman,

Silica	...	...	...	...	...	...	...	...	44.5
Alumina	...	...	...	...	...	...	...	...	15.0
Lime	...	...	...	...	...	...	...	...	8.8
Magnesia	...	...	...	...	...	...	...	...	4.7
Oxide of iron and titanium	...	...	...	...	...	...	...	...	12.0
Potash	...	...	...	...	...	...	...	...	1.4
Soda	...	...	...	...	...	...	...	...	4.1
Water	...	...	...	...	...	...	...	...	9.2
Loss	...	...	...	...	...	...	...	...	.3

Another variety.

Soluble silica (gelatinous)	...	...	...	...	...	...	...	...	56.0
Clay	...	...	...	...	...	...	...	...	7.0
Fine quartz sand	...	...	...	...	...	...	...	...	17.0
Chlorite	...	...	...	...	...	...	...	...	12.0
Water	...	...	...	...	...	...	...	...	8.0

CLAY. Stourbridge.

	1.	2.	3.	4.
Silicic acid	68·05	63·70	63·99	61·77
Alumina	18·85	20·70	20·84	18·97
Lime	·80	1·30	·30	1·53
Magnesia	—	—	·94	·91
Iron	5·10	1·00	·75	·17
Water	6·00	10·30	11·67	14·79
Loss	1·20	3·09	1·51	1·86

CLAYS, Fire. Newcastle.

	1.	2.	3.	4.
Silica	51·10	47·55	48·55	51·11
Alumina	31·35	29·50	30·25	30·40
Lime	1·46	1·34	1·66	1·76
Magnesia	1·54	·71	1·91	trace
Water and organic matter	10·47	12·01	10·67	12·29
Oxide of iron	4·63	9·13	4·06	4·91

CLAY. Stourbridge.

	1.	2.	3.	Monmouth.	Pembroke.
Silica	63·7	45·25	63·3	75·3	88·43
Alumina	20·7	28·77	25·3	16·8	6·90
Oxide of iron	4·0	7·72	1·8	1·0	1·50
Lime	—	·47	1·5	·9	3·40
Magnesia	—	—	trace	—	trace
Water	10·3	17·34	10·3	6·0	dried

COALS. Welsh, Ashes of.

	Pontypool.	Bedwas.	Porthmawr.	Ebbw Vale.
Silica	40·00	26·87	34·21	53·00
Alumina and }	44·78	56·95	52·00	35·01
Oxide of iron }				
Lime	12·00	5·10	6·19	3·94
Magnesia	trace	1·19	·65	2·20
Sulphuric acid	2·22	7·23	4·12	4·89
Phosphoric acid	·75	·74	6·63	·88

COALS Scotch, Ashes of.

	Fordell.	Splint.	Wallsend.	Elgin.
Silica	—	37·60	—	61·66
Alumina and }	—	52·00	—	24·42
Oxide of iron }				
Lime	—	3·73	—	2·62
Magnesia	—	1·10	—	1·73
Sulphuric acid	—	4·14	—	8·38
Phosphoric acid	—	·88	—	1·18

COAL. Gas by measure.

Olifiant gas	13 parts.
Light carburetted }	83 “
Hydrogen }	
Carbonic oxide	2 “
Hydrogen	1 “
Nitrogen	1 “
Carbonic acid gas	trace

COAL. Ash.

Silica	61·50
Oxide of iron and alumina	26·72
Magnesia	1·70
Lime	2·05
Potash	trace
Soda	trace
Phosphoric acid	·30
Sulphuric acid	5·72
Carbonic acid	2·01
	100·00

COAL.

	Newcastle.	Anthracite.
Carbon	80·0	91·0
Hydrogen	6·0	3·5
Oxygen	8·0	2·0
Nitrogen	·7	·5
Sulphur	·3	·5
Ash	5·0	2·5
	100·0	100·0

CHARCOAL. Old, from Sugar Refiners.

	1.	2.
Carbon nitrogenous	9·74	10·60
Calcic phosphate	82·80	83·20
Calcic carbonate	5·92	4·15
Calcic sulphate	·67	·64
Ferric oxide	·33	·55
Siliceous matters	·54	·86
	100·00	100·00
	3.	4.
Carbon nitrogenous	12·86	19·64
Calcic phosphate	81·80	73·20
Calcic carbonate	2·92	3·18
Calcic sulphate	·42	1·12
Ferric oxide	·67	·66
Siliceous matters	1·33	2·20
	100·00	100·00

CHALKS.

	Red.	White.
Carbonate of calcium	80·04	95·80
Sulphate of calcium	·10	trace
Sesquioxide of iron	9·60	1·08
Alumina	1·42	·52
Magnesia		·48
Silica	9·28	2·28
Manganese	trace	·11
	100·44	100·27

CHALK MARL.

Moisture	2·49
Carbonate of lime	69·23
Oxides of iron and alumina	·36
Phosphate of lime	·63
Sulphate of lime	trace
Magnesia and alkalies	·45
Soluble silica	8·29
Fine sand... ..	18·55
	100·00

CHLORALUM.

										Liquid.
Aluminium chloride	...	...	...	...	...	...	...	...	...	16·00
Calcium chloride	...	...	...	...	...	...	...	...	...	1·70
Alkalies (as sulphates)	...	...	...	...	...	...	...	...	...	·10
Hydrochloric acid	...	...	...	...	...	...	...	...	...	1·20
Water	...	...	...	...	...	...	...	...	...	81·00
Soluble in water.										Solid.
Aluminium chloride	...	...	...	...	...	...	...	...	...	13·40
“ Sulphate	...	...	...	...	...	...	...	...	...	4·10
Calcium “	...	...	...	...	...	...	...	...	...	9·10
Sodium “	...	...	...	...	...	...	...	...	...	14·10
										40·70
Soluble in hydrochloric acid	...	...	...	...	...	...	...	...	...	15·20
Insoluble “ “	...	...	...	...	...	...	...	...	...	*22·90
Water	...	...	...	...	...	...	...	...	...	20·90

* Kaolin, silicic acid.

CHALKOSIDERITE.

Iron oxide	...	...	...	...	...	...	...	...	...	42·810
Alumina	...	...	...	...	...	...	...	...	...	4·449
Copper oxide	...	...	...	...	...	...	...	...	...	8·148
Phosphoric acid	...	...	...	...	...	...	...	...	...	29·929
Arsenic acid	...	...	...	...	...	...	...	...	...	·609
Water	...	...	...	...	...	...	...	...	...	14·999
Uranium oxide	...	...	...	...	...	...	...	...	...	trace
										100·944

CALAITE or TURQUOIS.

							1.	2.
Phosphoric acid	...	...	...	...	...	...	30·9	27·34
Alumina	...	...	...	...	...	...	44·5	47·45
Oxide of copper	...	...	...	...	...	...	3·7	2·02
Protoxide of iron	...	...	...	...	...	...	1·8	—
Water	...	...	...	...	...	...	19·00	18·18

CANAANITE or SCAPOLITE.

Silica	...	...	...	...	...	...	...	...	41·25
Alumina	...	...	...	...	...	...	...	...	33·60
Lime	...	...	...	...	...	...	...	...	20·40
Protoxide of manganese	...	...	...	...	...	...	...	...	·5
Water	...	...	...	...	...	...	...	...	3·2

CASTOR.

Silica	...	...	...	...	...	...	...	...	78·0
Alumina	...	...	...	...	...	...	...	...	18·9
Oxides of iron and manganese	...	...	...	...	...	...	...	...	1·6
Lithia, potash and soda	...	...	...	...	...	...	...	...	2·8

COBALT. Arsenical.

	1.	2.
Cobalt	20·31	28·00
Arsenic	74·21	65·75
Iron	3·42	—
Copper	·15	6·25
Sulphur	·88	—
Loss	1·03	—

COBALT. Glance.

	1.	2.	3.
Cobalt	33·10	36·66	44·00
Arsenic	43·47	49·00	55·00
Sulphur	20·08	6·66	·50
Iron	3·23	5·66	—
Loss	·12	2·02	·50

COBALT. Pyrites.

	1.	2.
Cobalt	43·20	43·86
Copper	14·40	4·10
Iron	3·53	5·34
Sulphur	38·50	41·00
Loss	·37	5·70

SPEISS.

	1.	2.	3.
Nickel	49·0	52·6	52·70
Arsenic	37·8	40·5	44·00
Iron	—	2·7	} 1·60
Copper	1·6	1·6	
Manganese	—	—	
Cobalt	3·2	trace	—
Antimony	trace	—	—
Sulphur	7·8	2·5	1·65
Loss	·6	·1	·05

SMALT.

Protoxide of cobalt	15·00
Oxide of iron	4·50
Oxide of lead	4·90
Alumina	5·40
Potash	14·50
Silicic acid	55·70

COPPER ORE. Crude and Calcined.

	1.	2.
Oxide of copper	·374	5·401
Copper pyrites	22·710	11·228
Iron pyrites	22·442	11·226
Various sulphides	1·001	·600
Oxide of iron	·608	11·718
Other oxides	·269	·608
Quartz and silica	34·420	34·408
Earthy bases	1·871	1·874
Water and carbonic acid	·491	·491
Oxygen consumed	15·806	—

COPPER. Scoria.

	Blue.	Black.	Red.
Silica	55·0	56·0	58·6
Alumina	7·0	9·0	5·0
Lime	24·6	27·0	16·0
Protoxide of iron	11·9	7·0	12·6
Protoxide of copper	·5	·7	—
Suboxide of copper	—	—	6·6
Loss	1·0	·3	1·2

BLACK COPPER.

Copper	...	...	...	...	...	...	...	...	...	89.30
Iron	...	...	...	...	...	...	...	...	...	6.50
Protoxide of iron	...	...	...	...	...	...	...	...	...	2.40
Silica	...	...	...	...	...	...	...	...	...	1.30
Sulphur	...	...	...	...	...	...	...	...	...	.34
Loss	...	...	...	...	...	...	...	...	...	16

COPPER. Antimonial.

Lead	...	...	...	...	...	...	...	...	...	29.902
Copper	...	...	...	...	...	...	...	...	...	17.312
Antimony	...	...	...	...	...	...	...	...	...	16.644
Arsenic	...	...	...	...	...	...	...	...	...	6.036
Iron	...	...	...	...	...	...	...	...	...	1.404
Sulphur	...	...	...	...	...	...	...	...	...	28.702

100.000

COPPER, Glance. Vitreous copper ore.

Sulphur	...	...	...	...	...	...	...	...	...	20.6
Copper	...	...	...	...	...	...	...	...	...	77.2
Iron	...	...	...	...	...	...	...	...	...	1.5

COPPER ORE. Black Mine.

		1.	2.
Protoxide of copper	...	12.00	14.0
Copper pyrites	...	56.35	46.1
Iron pyrites	...	25.01	36.3
Sulphate of baryta	...	2.60	—
Sesquioxide of iron	...	—	3.0
Loss	...	4.04	.6

CHABAZITE.

Silica	...	...	...	...	...	...	...	...	48.4
Alumina	...	...	...	...	...	...	...	...	19.3
Lime	...	...	...	...	...	...	...	...	8.7
Potash	...	...	...	...	...	...	...	...	2.5
Water	...	...	...	...	...	...	...	...	21.1

CHLOROPHYLLITE.

										Chlorite.
Silica	...	...	...	...	...	...	...	...	45.2	30.4
Alumina	...	...	...	...	...	...	...	...	27.6	17.0
Magnesia	...	...	...	...	...	...	...	...	9.6	34.0
Protoxide of iron	...	...	...	...	...	...	...	...	8.2	4.4
Water	...	...	...	...	...	...	...	...	3.6	12.6
Protoxide of manganese	...	...	...	...	...	...	...	...	4.1	—

CHONDRODITE.

Silica	...	...	...	...	...	...	...	...	33.1
Magnesia	...	...	...	...	...	...	...	...	55.5
Protoxide of iron	...	...	...	...	...	...	...	...	3.6
Flourine	...	...	...	...	...	...	...	...	7.6

CHRYSOBERYL.

Alumina	...	...	...	...	...	...	...	...	73.6
Glucina	...	...	...	...	...	...	...	...	15.8
Silica	...	...	...	...	...	...	...	...	4.0
Protoxide of iron	...	...	...	...	...	...	...	...	3.4

CHRYSOLITE.

Silica	...	...	...	...	...	...	...	...	38.5
Magnesia	...	...	...	...	...	...	...	...	48.4
Peroxide of iron	...	...	...	...	...	...	...	...	11.2
Oxide of manganese	...	...	...	...	...	...	...	...	.3
Alumina	...	...	...	...	...	...	...	...	.2

CLINTONITE.

Silica	...	...	...	...	...	...	...	...	17.0
Alumina	...	...	...	...	...	...	...	...	37.6
Magnesia	...	...	...	...	...	...	...	...	24.3
Lime	...	...	...	...	...	...	...	...	10.7
Protoxide of iron	...	...	...	...	...	...	...	...	5.0
Water	...	...	...	...	...	...	...	...	3.6

COLUMBITE.

Columbic with niobic acid	...	...	...	...	...	...	80.1
Protoxide of iron	...	...	...	...	...	...	12.6
Protoxide of manganese	...	...	...	...	...	...	6.0
Oxide of tin	...	...	...	...	...	...	.1
Oxide of copper and lead	...	...	...	...	...	...	.4

CHRONSTEDTITE.

Iron protoxide	...	...	...	...	...	...	38.570
Iron peroxide	...	...	...	...	...	...	32.752
Silicic acid	...	...	...	...	...	...	18.546
Water	...	...	...	...	...	...	10.132
							100.000

CHRYSOCOLLA. Silicate of Copper.

Soluble silica	...	...	...	...	...	...	62.42
Insoluble silica	...	...	...	...	...	...	3.83
Oxide copper	...	...	...	...	...	...	25.69
“ lead	...	...	...	...	...	...	.12
“ iron	...	...	...	...	...	...	.26
“ manganese	...	...	...	...	...	...	trace
Alumina	...	...	...	...	...	...	
Oxide cobalt	...	...	...	...	...	...	trace
“ zinc	...	...	...	...	...	...	.34
Lime	...	...	...	...	...	...	.74
Magnesia	...	...	...	...	...	...	1.06
Oxygen	...	...	...	...	...	...	
Water	...	...	...	...	...	...	6.13
							100.59

CHRYSOCOLLA.

	Siberian.	New Jersey.
Oxide of copper	40.0	55.1 45.2
Silica	36.5	35.4 37.3
Water	20.2	28.5 17.0
Carbonic acid	2.1	1.0
Oxide of iron	1.0	

DIPYRE.

Silica	...	...	...	...	...	...	...	...	...	55·5
Alumina	...	...	...	...	...	...	...	...	...	24·8
Lime	...	...	...	...	...	...	...	...	...	9·6
Soda	...	...	...	...	...	...	...	...	...	9·4

DOLOMITE.

Carbonate of magnesia	...	...	...	...	...	...	...	...	45·8
Carbonate of lime	...	...	...	...	...	...	...	...	54·2

DATHOLITE or DYSCLASITE.

Silica	...	...	...	...	...	...	...	...	...	37·4
Lime	...	...	...	...	...	...	...	...	...	35·7
Boracic acid	...	...	...	...	...	...	...	...	...	21·3
Water	...	...	...	...	...	...	...	...	...	5·7

DYSLUTE.

Alumina	...	...	...	...	...	...	...	...	...	30·5
Oxide of zinc	...	...	...	...	...	...	...	...	...	16·8
Peroxide of iron	...	...	...	...	...	...	...	...	...	41·9
Protoxide of manganese	...	...	...	...	...	...	...	...	...	7·6
Silica	...	...	...	...	...	...	...	...	...	3·0
Moisture	...	...	...	...	...	...	...	...	...	·4

DANAITE.

Iron	...	...	...	...	...	...	...	...	...	32·9
Arsenic	...	...	...	...	...	...	...	...	...	41·4
Sulphur	...	...	...	...	...	...	...	...	...	17·8
Cobalt	...	...	...	...	...	...	...	...	...	6·5

DYSCLASITE.

Silica...	...	...	...	...	...	...	...	...	...	57·0
Lime	...	...	...	...	...	...	...	...	...	26·4
Water	...	...	...	...	...	...	...	...	...	16·6

DICHRONITE.

Silica...	...	...	...	...	...	...	...	...	48·3
Alumina	...	...	...	...	...	...	...	...	32·5
Magnesia	...	...	...	...	...	...	...	...	10·0
Protoxide of iron	...	...	...	...	...	...	...	...	6·0
Protoxide of manganese	...	...	...	...	...	...	...	...	·1
Water	...	...	...	...	...	...	...	...	3·1

DURANGITE.

Arsenic oxide	...	...	...	...	...	...	...	...	55·10
Alumina	...	...	...	...	...	...	...	...	20·68
Ferric oxide	...	...	...	...	...	...	...	...	4·78
Manganic oxide	...	...	...	...	...	...	...	...	1·30
Soda	...	...	...	...	...	...	...	...	11·66
Silicic acid	...	...	...	...	...	...	...	...	·81
Fluorine	...	...	...	...	...	...	...	...	5·67

100·00

ECLOGITE. Upper Franconia.

Silica...	...	...	...	...	...	...	...	...	57·10
Phosphoric acid	...	...	...	...	...	...	...	...	traces
Alumina	...	...	...	...	...	...	...	...	11·66
Peroxide of iron	...	...	...	...	...	...	...	...	3·22
Protoxide of iron	...	...	...	...	...	...	...	...	2·84
Manganese oxide	...	...	...	...	...	...	...	...	·31
Lime	...	...	...	...	...	...	...	...	13·80
Magnesia	...	...	...	...	...	...	...	...	6·37
Potash	...	...	...	...	...	...	...	...	·81
Soda	...	...	...	...	...	...	...	...	2·21
Water	...	...	...	...	...	...	...	...	·54

98·86

EMERALD.

Silica	...	...	...	...	...	...	...	...	68·50
Alumina	...	...	...	...	...	...	...	...	15·75
Glucina	...	...	...	...	...	...	...	...	12·50
Peroxide of iron	...	...	...	...	...	...	...	...	1·00
Lime	...	...	...	...	...	...	...	...	·25
Oxide of chrome	...	...	...	...	...	...	...	...	·30
Lime, magnesia and soda	...	...	...	...	...	...	...	...	traces

EPSOM SALTS. Crude.

Sulphuric acid	32·26
Magnesia	15·35
Protoxide of iron	1·73
Oxides of nickel and cobalt	·12
Lime	·09
Alumina	1·33
Potash	·83
Water	48·29
	100·00

EPSOM SALTS. Pure.

	Theory.	Found.
1 Eq. Magnesia	16·26	16·04
1 Eq. Sulphuric acid	32·52	32·53
7 Eqs. Water	51·22	51·43
	100·00	100·00

EDELFORSITE.

Silica	61·8
Lime	38·2

EPIDOTE. Green.

Silica	37·0
Alumina	26·6
Lime	20·0
Protoxide of iron	13·0
Protoxide of manganese	·6
Water	1·8

EUCHROITE.

Arsenic acid	33·0
Oxide of copper	48·0

ERINITE.

Arsenic acid	33·8
Oxide of copper	59·4

EUCLASE.

Silica	...	...	...	...	...	...	...	...	...	43·2
Alumina	...	...	...	...	...	...	...	...	...	30·6
Glucina	...	...	...	...	...	...	...	...	...	21·8
Peroxide of iron	...	...	...	...	...	...	...	...	...	2·2
Oxide of tin	...	...	...	...	...	...	...	...	...	·7

FRYTHRINE, or COBALT BLOOM. Arsenate of Cobalt.

Oxide of cobalt	...	...	...	...	...	...	...	...	...	37·6
Arsenic acid	...	...	...	...	...	...	...	...	...	38·4
Water	...	...	...	...	...	...	...	...	...	24·0

ERUBESCITE. Variegated Copper Pyrites.

Sulphur	...	...	...	...	...	...	...	...	...	25·7
Copper	...	...	...	...	...	...	...	...	...	62·8
Iron	...	...	...	...	...	...	...	...	...	11·6

FRANCOLITE. Cornwall.

Tricalcium phosphate	...	...	...	...	...	...	...	...	...	83·261
Calcium flouride	...	...	...	...	...	...	...	...	...	7·683
Calcium carbonate	...	...	...	...	...	...	...	...	...	5·104
Iron and manganese oxide	...	...	...	...	...	...	...	...	...	·913
Sodium oxide	...	...	...	...	...	...	...	...	...	·694
Water	...	...	...	...	...	...	...	...	...	1·593

99·248

FEATHER ORE.

Antimony...	...	...	...	...	...	...	...	...	...	31·0
Lead	...	...	...	...	...	...	...	...	...	47·0
Sulphur	...	...	...	...	...	...	...	...	...	20·0

FELDSPAR.

Silica	...	...	...	...	...	...	...	...	...	64·20
Alumina	...	...	...	...	...	...	...	...	...	18·40
Potash	...	...	...	...	...	...	...	...	...	16·95

FLOURSPAR.

Flourine	47·7
Calcium	52·3

FRANKLINITE.

Peroxide of iron	66·0
Sesquioxide of manganese	16·0
Oxide of zinc	17·0

FULLER'S EARTH.

Silica... ..	44·0
Alumina	23·1
Lime	4·1
Magnesia	2·0
Protoxide of iron	2·0

FUSIBLE METAL.

Bismuth	8 parts
Lead	5 "
Tin	3 "

FAHLUNITE.

Silica... ..	44·9
Alumina	30·7
Peroxide of iron	7·2
Potash	1·3
Magnesia	6·0
Lime	·9
Protoxide of manganese	1·9
Water	8·6

GUNPOWDER. Musket.

	Saltpetra.	Sulphur.	Charcoal.
England	76·5	9·0	14·5
Austria	72·0	16·0	17·0
France	75·0	12·5	12·5
Russia	80·0	8·7	11·3
Saxony	76·5	10·5	13·0
Baden	76·0	10·0	14·0

GUNPOWDER. Sporting.

						Saltpetre.	Sulphur.	Charcoal.
England	...	...	...	...	...	79·7	7·8	12·5
“	...	...	...	...	...	78·0	8·0	14·0
Austria	...	...	...	...	...	80·0	12·0	14·0
Russia	...	...	...	...	...	80·0	8·0	12·0
Baden	...	...	...	...	...	76·0	10·0	14·0

GUNPOWDER. Artillery.

						Saltpetre.	Sulphur.	Charcoal.
England	...	...	...	...	}	75·0	10·0	15·0
Government mills	...	...	...	...		75·0	8·0	17·0
Waltham Abbey	...	...	...	...		76·0	9·5	14·5
Austria	...	...	...	...	...	70·0	16·0	17·0
France	..	...	...	...	...	75·0	12·5	12·5
United States	...	...	...	...	...	75·0	12·5	12·5
Russia	...	...	...	...	...	71·0	11·5	17·5
Prussia	...	...	...	...	...	75·0	11·5	13·5
Spain...	...	...	...	...	...	76·5	10·8	12·7
Hanover	...	...	...	...	...	71·2	10·8	15·0
Holland	...	...	...	...	...	70·0	14·0	16·0
Italy ..	...	...	...	...	...	76·0	12·0	12·0
Portugal	...	...	...	...	...	75·7	10·7	13·6
Sweden	...	...	...	...	...	75·0	9·0	16·0
China...	...	...	...	...	...	61·5	15·5	23·0
China...	...	...	...	...	...	75·7	9·9	14·4

GLASS. Flint, Strass and Enamel.

						1.	2.	3.
Silica .r.	...	...	...	...	...	44·30	38·50	31·6
Potash	...	...	...	...	...	11·75	7·90	8·3
Lime	...	...	...	...	...	—	—	—
Alumina	...	...	...	...	...	—	1·0	—
Oxide of lead	...	...	...	...	...	43·05	53·0	50·3
Oxide of tin	...	...	...	...	...	—	—	9·8

GLASS.	Bohemian glass.	Bohemian opal glass.	Venetian Aventurine.	Bohemian mirror glass.
Silica	76·0	80·9	67·7	67·7
Potash	15·0	17·6	5·5	21·0
Soda	—	—	7·1	9·9
Lime	8·0	·7	8·9	1·4
Alumina	1·0	·8	—	—
Oxide of tin	—	—	2·3	—
Oxide of lead	—	—	1·1	—
Copper	—	—	3·9	—
Oxide of iron	—	traces	3·5	—

GLASS. From volcanic products.

	Lipari pumice.	Basalt of Hassenburg.	Basalt of Staffa.	Pitchstone of Mtsnai.
Silica	77·5	44·5	48·0	73·00
Alumina	17·5	16·7	16·0	14·50
Oxide of iron	1·7	20·0	16·0	1·00
Soda and potass ...	3·0	2·6	4·0	1·75
Lime	—	9·5	9·0	1·00
Magnesia	—	2·2	—	—
Water	—	2·0	5·0	8·50
Hydrochloric acid ...	—	—	1·0	·25
Loss	·30	2·5	1·0	·25

GLASS. Bohemian.

Silica	73·0
Potassa	11·5
Soda	3·0
Lime	10·5
Magnesia, alumina, sesquioxide of iron, and oxide of manganese	2·0

GLASS. Medicinal.

	1.	2.
Silica	71·6	62·5
Soda	—	—
Potash	10·6	10·5
Lime	10·0	16·2
Magnesia	—	—
Alumina	3·0	4·5
Oxide of manganese	·3	1·2
Oxide of lead	1·5	2·5

GLASS. Plate.

	1.	2.	3.	4.
Silica	72·0	76·0	75·9	73·85
Soda	—	—	—	5·50
Potash	17·0	17·0	17·5	12·05
Lime	6·4	6·0	3·8	5·60
Magnesia	—	—	—	—
Alumina	2·6	—	2·8	3·50
Oxide of manganese ...	—	—	—	—
Oxide of iron	1·9	1·0	—	—

GLASS. Crystal.

	1.	2.	3.	4.
Silica	59·2	56·0	51·4	56·0
Potash	9·0	6·6	9·4	8·9
Lime	—	—	—	2·6
Alumina	—	1·0	1·2	—
Oxide of lead	28·2	34·4	37·4	32·5
Oxide of manganese ...	1·0	—	—	—
Oxide of iron	·4	—	·8	trace

GLASS. White.

	1.	2.	3.	4.
Silica	71·7	71·6	69·4	69·2
Soda	12·7	11·0	11·8	15·8
Potash	2·5	—	—	3·0
Lime	10·3	10·0	9·2	7·6
Magnesia	—	2·3	—	2·0
Oxide of manganese ...	·2	·2	—	—
Oxide of iron	·3	3·9	—	·5
Alumina	·4	2·2	9·6	1·2

GLASS. Window.

	1.	2.	3.	4.	5.	6.
Silica	69·65	69·25	68·55	68·65	68·5	68·0
Soda	15·22	11·30	12·88	17·70	13·7	10·1
Lime	13·31	17·25	16·17	9·65	7·8	14·3
Alumina	1·82	2·20	2·40	4·00	10·0	7·6

GLASS. Bottle.

	1.	2.	3.
Silica	60·0	60·4	53·55
Soda	3·1	3·2	—
Potash	3·1	3·2	5·48
Lime	22·3	20·7	29·22
Magnesia	—	·6	—
Baryta	—	·9	—
Oxide of manganese	1·2	—	—
Alumina	8·0	10·4	6·01
Oxide of iron	4·0	3·8	4·40

GLAZE. English for Earthenware.

Silica	40·56
Alumina	6·07
Lead oxide	40·04
Ferric oxide	2·59
Manganous oxide	7·14
Lime	2·58
Alkalies and loss	1·02
	100·00

GLAUCONITE.

Silica	50·42
Alumina	4·79
Protoxide of iron	19·90
Peroxide of iron	5·96
Lime	3·21
Magnesia	2·28
Potash	7·87
Soda	·21
Water	5·28
Phosphoric acid	trace
	99·92

GARNET. Melanite.

Silica	35·6
Alumina	12·2
Sesquioxide of iron	16·8
Lime	33·3
Magnesia	1·2

GEHLENITE.

Silica...	29·6
Alumina ...	24·8
Lime ...	35·3
Protoxide of iron ...	6·6
Water ...	3·3

GERMAN SILVER.

Copper ...	8 parts
Nickel ...	3 “
Zinc ...	3½ “

GILBERTITE.

Silica ...	45·2
Alumina ...	40·1
Lime ...	4·2
Magnesia ...	1·9
Peroxide of iron ...	2·4
Water ...	4·25

GREEN EARTH.

Silica ...	51·5
Alumina ...	6·4
Protoxide of iron ...	24·3
Potash ...	9·96
Water ...	7·7

GÜMBELITE. Upper Franconia.

Silicic acid ...	50·52
Alumina ...	31·04
Iron oxide ...	3·00
Magnesia ...	1·88
Potash ...	3·18
Water ...	7·00
Undecomposed substance ...	1·46

98·08

HUMITE.

	Vesuvius.	Sweden.
Silica	35·63	33·96
Magnesia	54·45	53·51
Ferrous oxide	5·12	6·83
Lime	·23	—
Alumina	·82	·72
Flourine	2·43	4·24
	98·68	99·26

HARMATONE.

Silica	46·6
Alumina	16·8
Baryta	20·3
Lime	·3
Potash	1·0
Water	15·0

HAUYNE.

Silica	35·0
Alumina	27·4
Soda	9·1
Lime	12·6
Sulphuric acid... ..	12·6
Sulphur and chlorine	traces

HALLOYLITE.

Silica	39·5
Alumina	34·0
Water	26·5

HERRERITE.

Carbonic acid	31·9
Tellurium	55·6
Peroxide of nickel	12·3

HEULANDITE.

Silica	...	...	...	...	...	...	...	...	...	59.1
Alumina	...	...	...	...	...	...	...	...	...	17.9
Lime	...	...	...	...	...	...	...	...	...	7.6
Water	...	...	...	...	...	...	...	...	...	15.4

HUDSONITE.

Silica	...	...	...	...	...	...	...	...	...	54.1
Lime	...	...	...	...	...	...	...	...	...	23.5
Magnesia	...	...	...	...	...	...	...	...	...	11.5
Protoxide of iron	...	...	...	...	...	...	...	...	...	10.0
Protoxide of manganese	...	...	...	...	...	...	...	...	...	.6

HYPERSTHENE.

Silica	...	...	...	...	...	...	...	...	...	54.25
Lime	...	...	...	...	...	...	...	...	...	1.50
Magnesia	...	...	...	...	...	...	...	...	...	14.00
Protoxide of iron	...	...	...	...	...	...	...	...	...	24.50
Protoxide of manganese	...	...	...	...	...	...	...	...	...	trace
Alumina	...	...	...	...	...	...	...	...	...	2.25
Water	...	...	...	...	...	...	...	...	...	1.00

HUMBOLATILITE.

Silica	...	...	...	...	...	...	...	...	...	44.0
Alumina	...	...	...	...	...	...	...	...	...	11.2
Lime	...	...	...	...	...	...	...	...	...	32.0
Magnesia	...	...	...	...	...	...	...	...	...	6.1
Protoxide of iron	...	...	...	...	...	...	...	...	...	2.3
Soda	...	...	...	...	...	...	...	...	...	4.3
Potash	...	...	...	...	...	...	...	...	...	.4

HORNBLLENDE.

Silica	...	...	...	...	...	...	...	...	...	48.8
Magnesia	...	...	...	...	...	...	...	...	...	13.6
Lime	...	...	...	...	...	...	...	...	...	10.2
Alumina	...	...	...	...	...	...	...	...	...	7.5
Protoxide of iron	...	...	...	...	...	...	...	...	...	18.7
Protoxide of manganese	...	...	...	...	...	...	...	...	...	1.5
Hydrofluoric acid and water	...	...	...	...	...	...	...	...	...	.9

ISENITE. New Volcanic Rock.

Silica	...	...	...	...	...	...	...	...	48·02
Alumina	...	...	...	...	...	...	...	...	16·92
Ferric oxide	...	...	...	...	...	...	...	...	11·63
Ferrous oxide	...	...	...	...	...	...	...	...	4·70
Manganous oxide	...	...	...	...	...	...	...	...	2·44
Magnesia	...	...	...	...	...	...	...	...	1·45
Lime	...	...	...	...	...	...	...	...	8·58
Soda	...	...	...	...	...	...	...	...	2·36
Water	...	...	...	...	...	...	...	...	1·78
Titanic acid	...	...	...	...	...	...	...	...	·15
Phosphoric acid	...	...	...	...	...	...	...	...	1·55
Sulphuric acid...	...	...	...	...	...	...	...	...	·56
Chlorine	...	...	...	...	...	...	...	...	·53
									100·67

IONA PEBBLES.

	Light.	Dark.
Silica	37·20	43·20
Lime	5·03	5·10
Magnesia	36·73	33·60
Ferrous oxide	5·39	6·00
Manganese oxide	4·19	·94
Water	11·42	9·60
99·96		98·44

IDOCRASE.

Silica	...	...	...	...	...	...	...	37·4
Alumina	...	...	...	...	...	...	...	23·5
Protoxide of iron	...	...	...	...	...	...	...	4·0
Lime	...	...	...	...	...	...	...	29·7
Magnesia and protoxide of manganese	...	...	...	...	...	...	...	5·2

ISOPYRE.

Silica	...	...	...	...	...	...	...	47·1
Alumina	...	...	...	...	...	...	...	13·9
Peroxide of iron	...	...	...	...	...	...	...	20·1
Lime	...	...	...	...	...	...	...	15·4
Oxide of copper	...	...	...	...	...	...	...	1·9

ILVAITE.

Oxide of iron	...	...	...	...	...	...	...	...	50 to 55
Lime	...	...	...	...	...	...	...	...	14
Silica	...	...	...	...	...	...	...	...	29

IOLITE.

Silica	...	...	...	...	...	...	...	...	48·3
Alumina	...	...	...	...	...	...	...	...	32·5
Magnesia	...	...	...	...	...	...	...	...	10·0
Protoxide of iron	...	...	...	...	...	...	...	...	6·0
Protoxide of manganese	...	...	...	...	...	...	...	...	·1
Water	...	...	...	...	...	...	...	...	3·0

IRON ORE (Chromic).

Green oxide of chromium	...	...	...	...	...	...	...	60·0
Protoxide of iron	...	...	...	...	...	...	...	20·1
Alumina	...	...	...	...	...	...	...	11·8
Magnesia	...	...	...	...	...	...	...	7·5

IRON ORE (Magnetic).

Peroxide of iron	...	...	...	...	...	...	...	69·0
Protoxide of iron	...	...	...	...	...	...	...	31·0
or								
Iron	...	...	...	...	...	...	...	71·8
Oxygen	...	...	...	...	...	...	...	28·2

IRON ORES.

	Spathic.	Pyrites.	Arsenical Pyrites.	Magnetic.
Protoxide of iron	...	...	...	...
Sulphur	...	...	...	...
Arsenic	...	...	...	...
Carbonic acid	...	...	...	...
	61·37	45·74	36·0	59·6
	—	54·26	21·1	40·4
	—	—	42·9	—
	38·63	—	—	—

IRON ORE. Bog.

	1.	2.	3.
Sesquioxide of iron	78·57	43·4	66·0
Oxide of manganese	—	15·0	1·5
Phosphoric acid	—	—	8·0
Water and organic matters	21·43	15·0	23·0
Silica	—	23·0	—
Alumina	—	3·2	—
	100·00	99·6	98·5

IRON ORE. Black Band.

	1.	2.	3.
Protoxide of iron	49·4	49·6	46·6
Carbonic acid	35·2	30·4	30·1
Magnesia	4·0	8·1	—
Alumina	1·8	1·8	—
Lime	—	—	6·3
Silica	—	—	5·4
Coaly matter	9·6	9·6	8·4
Loss	—	·5	3·2

IRON ORES. From Persberg.

	1.	2.
Silica	17·10	17·31
Alumina	·55	1·16
Lime	1·35	1·13
Magnesia	7·50	1·15
Protoxide of manganese	·14	·18
Protoxide of iron	72·79	79·27
Sulphur	—	·06
Phosphorus	—	·01
Metallic iron	56·61	60·65
	3.	4.
Silica	15·248	17·930
Alumina	2·997	2·944
Lime	9·166	4·391
Magnesia	5·236	5·594
Protoxide of manganese	·044	·044
Protoxide of iron	73·384	69·220
Sulphur	trace	trace
Phosphorus	trace	trace
Metallic iron	57·070	53·820

IRON (Meteoric).

	1.	2.
Iron	88·706	88·365
Nickel	10·163	10·242
Cobalt	·396	·428
Copper	·003	·004
Tin	·002	·002
Manganese	trace	—
Phosphorus	·341	·362
Sulphur	·019	·008
Chlorine	·003	·002
Carbon	·172	·185
Silica	·067	·061
	99·872	99·659

IRON ORES. Oolitic.

	1.	2.
Clay and sand	18·80	18·42
Organic matter	·60	·60
Iron pyrites	·35	·45
Peroxide of iron	49·97	47·98
Protoxide of iron	5·36	5·31
Oxide of manganese	·20	·44
Alumina	5·09	6·48
Lime	5·20	5·02
Magnesia	1·32	1·32
Phosphoric acid	1·71	1·88
Carbonic acid	4·61	4·93
Combined water	6·92	7·15
	100·13	99·98
Metallic iron	39·39	37·95

IRONSTONES (Clay).

	Low Moor.	Dowlais.
Protoxide of iron	47·13	38·77
Peroxide of iron	—	—
Protoxide of manganese	2·20	1·30
Alumina	—	·32
Lime	2·58	4·45
Magnesia	1·12	4·25
Silica	—	·08
Carbonic acid	32·55	30·53
Phosphoric acid	·96	·46
Sulphuric acid	trace	—
Water { hygroscopic	·25	·35
{ combined	1·75	1·08
Organic matter	·30	·29
Ignited insoluble residue	11·30	17·95
	100·14	99·83

IRON. Cleveland Pig.

	1.	2.
Carbon as graphite... ..	2·97	2·881
Carbon combined	·51	·352
Silicum	1·48	1·491
Phosphorus	1·82	1·739
Sulphur	·20	·223
Iron	91·92	92·445
Manganese	·66	·344
Titanium and vanadium	·24	·252
	99·80	99·727

IRON. South Wales Pig.

	Grey.	Mottled.	White.
Carbon	3·14	2·95	2·84
Silicon	2·16	1·96	1·21
Sulphur	·11	·28	·46
Phosphorus	·63	·63	·64
Iron	94·56	95·39	95·10
Manganese	·50	·23	·14
Nickel and cobalt	·05	·04	·03
	101·15	101·48	100·42

IRON. Grey pig smelted with coke.

	1.	2.	3.
Iron	95·15	95·81	94·84
Carbon	2·45	2·55	1·67
Silica	1·62	1·20	3·00
Phosphorus	·78	·44	·49
Manganese	trace	trace	trace

IRON. Smelted with coal (Scotland):

	1.	2.	3.	4.	5.
Iron	93·6	93·4	92·3	89·7	91·6
Carbon, free	1·4	·5	1·8	2·5	1·5
Carbon, combined	1·2	1·9	·4	·7	·3
Silica	1·5	1·2	2·8	2·2	1·8
Sulphur	·4	1·4	1·4	—	·6
Phosphorus	·4	1·2	1·3	—	·9
Manganese	·5	·4	—	2·8	2·6
Slag	1·0	—	—	2·1	·6
Loss	—	—	—	—	·1

IRON. Pig, containing Molybdenum and other metals.

	1.	2.	3.	4.
Manganese	—	—	·01	·02
Iron	57·91	73·26	74·60	76·77
Cobalt	·67	·77	3·07	3·25
Nickel	3·42	4·63	1·28	1·15
Copper	2·45	1·79	4·32	3·40
Silver	—	—	—	—
Molybdenum	28·49	9·13	10·19	9·97
Silica	—	—	·39	·35
Carbon	·87	1·42	·48	·38
Arsenic	—	—	2·47	1·40
Phosphorus	3·52	6·05	2·27	1·25
Sulphur	·60	·09	·92	2·06
Loss	·07	2·86	—	—

IRON. From hot and cold blast.

	Cold blast.		Hot blast.	
Iron	93·29	93·66	91·42	91·98
Carbon, combined	2·78	·48	1·44	·95
Carbon, free	1·99	3·85	2·71	3·48
Phosphorus	1·23	1·22	1·22	1·68
Sulphur	trace	trace	trace	trace
Lime	trace	—	trace	—
Silica... ..	·71	·79	3·21	1·99
Manganese	trace	trace	trace	trace
	100·00	100·00	100·00	100·08

IRON. Bowling pig.

	1.	2.
Carbon, as graphite	3·421	3·155
Carbon, combined	·583	·581
Silicium	1·708	1·646
Iron	92·070	92·644
Manganese	1·606	1·472
Phosphorus	·630	·635
Sulphur	·073	·070
Titanium	traces	traces
	100·091	100·203

IRON. Refined.

	1.	2.	3.	4.
Carbon	3·070	3·250	2·000	3·200
Silicium	·630	·500	·540	·550
Sulphur	·157	·575	1·250	·870
Phosphorus	·734	·835	·985	·920
Manganese	trace	—	·056	trace
Insoluble matter	·530	·050	—	—
Iron	95·140	96·300	94·255	95·000
	<u>100·261</u>	<u>101·510</u>	<u>99·086</u>	<u>100·540</u>

IRON. Hematite Plg.

	1.	2.
Carbon, as graphite	3·548	3·173
Carbon combined	·257	1·096
Silicium	3·294	1·660
Phosphorus	·044	·075
Sulphur	·065	·071
Iron	92·780	93·957
Manganese	·182	trace
Titanium	—	·041
	<u>100·170</u>	<u>100·073</u>

STEEL.

	Brescia.	Cast steel.	Best razor steel.	Siegen.	Good for tools.
Iron	·98·06	97·90	93·80	97·88	97·316
Carbon	1·94	1·72	1·43	1·70	1·283
Sulphur	trace	·22	1·00	trace	·074
Silica	trace	·07	—	·04	1·343
Copper	trace	·02	—	·38	—
Arsenic	—	—	·93	—	—
Antimony	—	—	·12	—	—
Nitrogen	—	—	·18	—	—
Manganese	—	—	1·92	—	·480
Loss	—	—	·10	—	—
Phosphorus	—	—	—	—	·045

IRON. Cast Steel Wheels.

	Ingot steel.	Wheels.	Wheels.
Carbon	·435	1·233	1·237
Silicium	·155	·297	·303
Sulphur	·017	·022	·017
Phosphorus	·131	·069	·069
Iron	99·499	97·544	97·882
Manganese	·367	·881	·955
Copper	traces	traces	—
	100·604	100·046	100·463

IRON SLAGS.

	1.	2.	3.	4.	5.	6.
Silica	38·05	38·76	37·63	37·91	39·52	28·32
Alumina	14·11	14·48	12·78	13·01	15·11	24·24
Lime	35·70	35·68	33·46	31·43	32·52	40·12
Magnesia	7·61	6·84	6·64	7·24	3·49	2·79
Manganese	·40	·23	2·64	2·79	2·89	·07
Protoxide of iron	1·27	1·18	3·91	·93	2·02	·27
Potassa	1·85	1·11	1·92	2·60	1·06	·64
Sulphide of calcium	·82	·98	·68	3·65	2·15	3·64
Sulphur	—	—	—	—	—	—
Loss	·19	·74	·34	·44	1·24	·09

IRON SLAGS.

	1.	2.	3.	4.	5.
Silica	43·75	38·12	40·4	36·6	55·48
Alumina	12·50	16·97	11·2	37·5	19·32
Lime	31·22	32·77	38·4	20·7	14·57
Magnesia	17·15	6·22	5·2	1·5	2·54
Protoxide of iron and manganese }	4·88	5·92	3·8	1·0	4·36
Sulphur	—	—	—	2·7	2·43
Loss	·50	—	1·0	—	1·30

IRON SLAG. White iron made from pisolitic ores.

	1.	2
Silica	41·11	37·84
Alumina	13·45	13·20
Lime	29·82	20·68
Protoxide of iron	6·44	20·83
Magnesia	4·75	2·93
Protoxide of manganese	·66	·80
Alkalies	1·84	1·08
Phosphoric acid	·15	1·77
Sulphide of calcium	1·34	·87
Loss	·44	·05

IRON SLAGS. Average of 13 furnaces.

Silica	43·07
Alumina	14·85
Protoxide of iron	2·53
Protoxide of manganese	1·37
Lime	28·92
Magnesia	5·87
Potash	1·84
Lime	1·01
Sulphur	·89
Phosphoric acid	traces
	100·35
Metallic iron	1·97

IRON RUST.

	Conway Bridge.	Llangollen.
Sesquioxide of iron	93·094	92·900
Protoxide of iron	5·810	6·177
Carbonate of iron	·900	·617
Silica	·196	·121
Ammonia	trace	trace
Carbonate of lime	—	·295

JAMESONITE.

Antimony	35
Lead	41
Sulphur	23

KAOLIN.

Silica	...	...	...	...	...	...	...	...	43·6
Alumina	...	...	...	...	...	...	...	...	37·7
Peroxide of iron	...	...	...	...	...	...	...	...	1·5
Water	...	...	...	...	...	...	...	...	12·6

KEILHANITE.

Silica	...	...	...	...	...	...	...	...	30·0
Titanic acid	...	...	...	...	...	...	...	...	29·0
Yttria	...	...	...	...	...	...	...	...	9·6
Lime	...	...	...	...	...	...	...	...	18·9
Peroxide of iron	...	...	...	...	...	...	...	...	6·4
Alumina	...	...	...	...	...	...	...	...	6·1

KIANITE.

Moisture (loss 212° Fah.)	...	...	...	...	...	...	...	3·36
Water of combination	...	...	...	...	...	...	...	10·88
*Sulphate of potash	...	...	...	...	...	...	...	24·43
Sulphate of lime	...	...	...	...	...	...	...	2·72
Sulphate of magnesia	...	...	...	...	...	...	...	13·22
Chloride of magnesium	...	...	...	...	...	...	...	14·33
Chloride of sodium	...	...	...	...	...	...	...	30·35
Insoluble siliceous matters	...	...	...	...	...	...	...	·71
								100·00
*Containing potash	...	...	...	...	...	...	...	13·20

KIESERITE.

Sulphuric acid	...	...	...	...	...	...	...	57·87
Magnesia	...	...	...	...	...	...	...	28·89
Oxide of iron	...	...	...	...	...	...	...	·05
Soda	...	...	...	...	...	...	...	·05
Chlorine	...	...	...	...	...	...	...	·06
Water	...	...	...	...	...	...	...	13·24
								100·16

KJERULFIN.

Phosphoric acid	...	...	...	...	...	...	...	...	42·22
Magnesia	...	...	...	...	...	...	...	...	37·00
Lime	...	...	...	...	...	...	...	...	7·56
Soda	...	...	...	...	...	...	...	...	1·56
Flourine	...	...	...	...	...	...	...	...	4·78
Silica	...	...	...	...	...	...	...	...	1·50
Alumina	...	...	...	...	...	...	...	...	5·40
									100·02

KELP. Isle of Skye.

		1.	2.
Soluble ...	{ Sulphate of soda	8·0	19·0
	{ Carbonate and sulphide of soda ...	8·5	5·5
	{ Chlorides of potassium and sodium	36·5	37·5
		53·0	62·0
Insoluble	{ Carbonate of lime	24·0	10·0
	{ Silica... ..	8·0	
	{ Alumina and oxide of iron	9·0	10·0
	{ Sulphate of lime		9·5
	{ Sulphur and loss	6·0	8·5
		100·0	100·0

KOBELLITE.

Sulphuret of bismuth	...	...	...	...	...	...	33·0
Sulphuret of lead	...	...	...	...	...	...	46·0
Sulphuret of antimony	...	...	...	...	...	...	13·0

LIMESTONES. Cumberlandshire.

		1.	2.	3.
Carbonate of lime	...	94·86	94·56	95·95
Carbonate of magnesia	...	1·26	2·32	·54
Sulphate of lime	...	·23	·32	·24
Phosphate of lime	...		·33	
Alumina and oxide of iron	...	·73	1·18	1·21
Silica	...	2·92	1·29	2·06

LIMESTONES.

	Inferior Oolite.	Great Oolite.	Combrash.	Stonefield Slate.	Forest Marble.
Carbonate of lime	89·20	95·346	39·145	84·264	81·242
Sulphate of lime	·09	·204	·241	·649	·737
Magnesia	·34	·730	·791	·454	·324
Alumina and oxide of iron }	4·14	1·422	2·998	1·804	·142
Phosphoric acid...	·06	·124	·177	·117	·003
Silicic acid	2·75	1·016	1·231	·582	1·312
Insoluble matters	3·27	·573	4·827	11·558	15·240
Alkalies	—	—	—	—	—

LIMESTONES. Norfolkshshire.

	1.	2.	3.	4.	5.
Carbonate of lime	62·95	81·55	69·90	47·90	88·40
Carbonate of magnesia ..	—	trace	5·85	—	—
Oxide of iron and alumina	7·40	4·65	6·45	trace	4·55
Clay	29·35	14·15	17·45	8·22	5·25
Loss	·30	—	·35	3·88	1·80

LIMESTONES. Northumberlandshire.

	Hasting- ton.	Kirk- heaton.	Belsay.	Aller- wash.	Dry- burn.	Oxford.
Carbonate of lime	97·5	93·1	95·6	98·39	99·0	96·2
Carbonate of magnesia	·6	4·4	1·4	—	—	—
Silica	1·3	2·2	3·0	2·40	1·0	3·6
Loss	·6	·3	—	—	—	·2

LIMESTONES. Continental.

	Calcareous spar. Andreasberg.	Limestone. Paris.	Limestone. Dresdhach.	Chalk. Bongival.
Carbonate of lime	99·54	98·5	96·30	95·50
Carbonate of magnesia	—	—	2·42	·80
Protoxide of iron	—	—	·72	·80
Protoxide of manganese	—	—	·40	—
Silica	—	—	—	—
Alumina	—	—	—	—
Oxide of iron	—	1·5	trace	1·70
Oxide of manganese	·36	—	—	—
Water	·10	—	1·20	1·20
	100·00	100·00	101·04	100·00

LIMESTONES.

	Limestone, near Lyons.	Muschelkalk, Hollenhagen.
Carbonate of lime	94·0	83·83
Carbonate of magnesia	1·6	1·76
Silica	—	10·66
Alumina	—	·03
Oxide of iron	3·9	1·73
Oxide of manganese	—	·06
Water	—	1·93
	99·5	100·00

LIMESTONES. Hydraulic.

	1.	2.	3.	4.
Carbonate of Lime	89·0	82·5	80·0	79·2
Magnesia	2·0	4·1	1·0	2·5
Protoxide of iron	—	—	—	6·0
Protoxide of Manganese	—	—	—	—
Silica	9·0	13·4	17·0	6·5
Alumina			1·0	3·8
Oxide of iron			—	—
Carbon			—	2·0
Water	—	—	1·0	—
Loss	—	—	—	—

LIMESTONE. Stirlingshire.

	1.	2.
Carbonate of lime	93·32	97·80
Carbonate of magnesia	—	—
Sesquioxide of iron	2·79	·63
Carbonaceous matter	·28	·64
Silica and alumina	1·36	1·92
Loss	2·25	—
	100·00	100·99

LIMESTONE. Sunderlandshire.

Carbonate of lime	49·92
Carbonate of magnesia	36·23
Oxide of iron and alumina	4·70
Siliceous matter	7·92
Alkaline salts	·20
Sulphate of lime	·27
Loss	·76
	100·00

LIMESTONES. Argyleshire.

	1.	2.	3.	4.
Carbonate of lime	90·14	89·15	98·05	90·96
Carbonate of magnesia ...	·31	2·56	·44	·62
Alumina and oxide of iron	·51	·51	·29	1·81
Siliceous matter	9·08	7·48	1·27	6·40
Loss	—	·30	—	·21
	100·04	100·00	100·05	100·00

LIMESTONES. Invernesshire.

	1.	2.
Carbonate of lime	93·82	94·10
Carbonate of magnesia ...	1·64	1·00
Alumina and oxide of iron	·99	2·16
Siliceous matter	3·55	2·74
	100·00	100·00

LITHIOPHORITE.

		Laumonite.	
		1.	2.
Silica	—	51·1	48·3
Potash	·73	—	—
Soda	1·23	—	—
Baryta	2·78	—	—
Lime	trace	11·9	12·1
Cobalt	2·42	—	—
Nickel	2·42	—	—
Copper	1·74	—	—
Manganese	55·12	—	—
Oxygen	10·28	—	—
Iron	1·48	—	—
Alumina	10·54	21·8	22·7
Water	12·64	15·2	16·0

LABRADORITE.

Silica	55·75
Alumina	26·50
Peroxide of iron	1·25
Lime	11·00
Soda	4·00
Water	·05

LATROBITE.

Silica	...	...	...	...	...	...	...	...	...	41·8
Alumina	...	...	...	...	...	...	...	...	...	32·8
Lime	...	...	...	...	...	...	...	...	...	9·8
Oxide of manganese with magnesia	...	...	...	...	...	...	...	...	...	5·8
Potash	...	...	...	...	...	...	...	...	...	6·6
Water	...	...	...	...	...	...	...	...	...	2·0

LAPIS LAZULI.

Silica	...	...	...	...	...	...	...	...	...	45·5
Alumina	...	...	...	...	...	...	...	...	...	31·8
Soda	...	...	...	...	...	...	...	...	...	9·1
Lime	...	...	...	...	...	...	...	...	...	3·5
Iron	...	...	...	...	...	...	...	...	...	·8
Sulphuric acid	...	...	...	...	...	...	...	...	...	5·9
Sulphur	...	...	...	...	...	...	...	...	...	·9
Chlorine	...	...	...	...	...	...	...	...	...	·4
Water	...	...	...	...	...	...	...	...	...	·1

LAZULITE.

Phosphoric acid	...	...	...	...	...	...	...	...	...	41·8
Alumina	...	...	...	...	...	...	...	...	...	35·7
Magnesia	...	...	...	...	...	...	...	...	...	9·3
Silica	...	...	...	...	...	...	...	...	...	2·1
Protoxide of iron	...	...	...	...	...	...	...	...	...	2·6
Water	...	...	...	...	...	...	...	...	...	6·1

LEAD. Carbonate of.

Oxide of lead	...	...	...	...	...	...	...	...	...	83·46
Carbonic acid	...	...	...	...	...	...	...	...	...	16·54

LEAD, Chloride of.

Lead	...	...	...	...	...	...	...	...	...	83·0
Chlorine	...	...	...	...	...	...	...	...	...	14·0

LEAD. Chromate of.

Chromic acid	31·85
Protoxide of lead	68·15

LEAD. Molybdate.

Molybdic acid... ..	34·25
Protoxide of lead	64·42

LEAD. Phosphate of.

Phosphoric acid	19·73
Oxide of lead	78·58
Muriatic acid	1·65

LEAD. Tungstate.

Tungstic acid	52·00
Lead	48·00

LEPIDOLITE.

Silica	47·7
Alumina	20·3
Lime	6·1
Protoxide of manganese	4·7
Potash	11·0
Lithia	2·8
Soda	2·2
Fluorine	10·2
Chlorine	1·2

LEPIDMELANE.

Silica	37·4
Alumina	11·6
Peroxide of iron	27·7
Magnesia and lime... ..	·3
Potash	9·2
Protoxide of iron	12·4
Water	·6

LEUCITE.

Silica	...	...	...	...	...	...	...	...	...	54·00
Alumina	...	...	...	...	...	...	...	...	...	23·00
Potash	...	...	...	...	...	...	...	...	...	22·00

LEUCOPHANE.

Silica	..	...	...	...	...	...	...	...	...	47·80
Glucina	...	...	...	...	...	...	...	...	...	11·50
Lime	...	...	...	...	...	...	...	...	...	25·00
Protoxide of manganese	...	...	...	...	...	...	...	...	...	1·01
Potassium...	...	...	...	...	...	...	...	...	...	30
Sodium	...	..	...	...	...	...	...	...	...	7·60
Flourine	...	...	...	...	...	...	...	...	...	6·20

LEUCOPYRITE.

Iron	...	...	...	...	...	...	...	...	...	32·4
Arsenic	...	...	...	...	...	...	...	...	...	65·9
And some sulphur										

LIME, Borosilicate.

Silica	...	...	...	...	...	...	...	...	...	37·4
Lime	...	...	...	...	...	...	...	...	...	35·7
Boric acid	...	...	...	...	...	...	...	...	...	21·3
Water	...	...	...	...	...	...	...	...	...	5·7

LIME. Tungstate.

Tungstic acid	...	...	...	...	...	...	...	...	...	7·80
Lime	...	...	...	...	...	...	...	...	...	19·06

LIEVRITE.

Silica	...	...	...	...	...	...	...	...	...	29·67
Peroxide of iron	...	...	...	...	...	...	...	...	...	21·26
Protoxide of iron	...	...	...	...	...	...	...	...	...	33·09
Oxide of manganese	...	...	...	...	...	...	...	...	...	74
Lime	...	..	...	...	...	..	...	...	...	13·33
Water	...	...	...	...	...	...	...	...	...	2·32
										100·41

MANGANESE SPAR.

Oxide of manganese	...	...	...	...	...	...	...	52·6
Silica	...	...	...	...	...	...	...	39·6
Oxide of iron	...	...	...	...	...	...	...	4·6
Lime and magnesia	...	...	...	...	...	...	...	1·5
Water	...	...	...	...	...	...	...	2·7

MARMOLITE.

Silica	...	...	...	...	...	...	...	40·10
Magnesia	...	...	...	...	...	...	...	41·40
Protoxide of iron	...	...	...	...	...	...	...	2·70
Water	...	...	...	...	...	...	...	15·70

MARTINSITE.

Chloride of sodium	...	...	...	...	...	...	...	91·0
Sulphate of magnesia	...	...	...	...	...	...	...	9·0

MAGNESIA. Native or Brucite.

Magnesia	...	...	...	...	...	...	...	62·0
Protoxide of iron	...	...	...	...	...	...	...	4·6
Water	...	...	...	...	...	...	...	28·4
Carbonic acid	...	...	...	...	...	...	...	4·1

MALACOLITE.

Silica	...	...	...	...	...	...	...	55·3
Lime	...	...	...	...	...	...	...	27·0
Magnesia	...	...	...	...	...	...	...	17·0
Protoxide of manganese	...	...	...	...	...	...	...	1·6
Protoxide of iron	...	...	...	...	...	...	...	2·2

MALACONE.

Silica	...	...	...	...	...	...	...	31·3
Zirconia	...	...	...	...	...	...	...	63·4
Water	...	...	...	...	...	...	...	3·0

MEERSCHAUM.

	Levant.	Madrid.	Natiolia.	Morocco.
Silica	60·87	53·80	42·00	55·00
Magnesia	27·80	23·80	30·50	28·00
Lime	—	—	2·30	1·00
Alumina and ... }	—	—	—	{ 1·20
Oxide of iron ... }	·09	1·20	2·00	{ 1·40
Water	11·24	20·00	23·00	10·35
Potassa	—	—	—	·52
Sand	—	—	—	2·50
Loss	—	1·20	·20	·03
	100·00	100·00	100·00	100·00

MONAZITE.

Oxide of cerium	26·00
Oxide of lanthanum	23·40
Thoria	17·95
Phosphoric acid	28·50
Oxide of tin	2·10
Protoxide of manganese	1·90
Lime	1·70

MONZONITE.

Silica	62·60
Alumina	17·10
Oxide of iron	9·00
Lime	9·65
Magnesia	2·10
Soda	6·60
Potash	1·90
Water	1·50

There is some error in this analysis in the Chemical Society's Journal, 1871, page 1178.

MELAPHYRE.

	Violet Black.	Blackish Grey.
Silica	52·75	50·41
Alumina	10·80	21·40
Peroxide of iron	20·24	11·07
Protoxide of iron	3·84	4·95
Lime	2·36	3·31
Magnesia	·41	·94
Potash	1·54	2·26
Soda	3·62	3·91
Carbonic acid	1·99	—
Water	3·10	3·33
	100·65	101·58

MORDENITE.

	1.	2.
Potass	·09	·23
Soda	2·25	2·34
Lime	3·94	3·21
Alumina	13·28	12·55
Silica	67·33	68·85
Water	12·88	13·32
	99·77	100·50

MANGANOPHYLL.

Silica	38·50
Alumina	11·00
Manganous oxide	21·40
Ferrous oxide	3·78
Lime	3·20
Magnesia	15·01
Potash	5·51
Loss on ignition	1·60
	100·00

MICA. Black.

Silica	...	...	...	...	...	...	...	...	...	38.49
Alumina	...	...	...	...	...	...	...	...	...	14.43
Protoxide of iron	...	...	...	...	...	...	...	...	...	5.44
Peroxide of iron	...	...	...	...	...	...	...	...	...	14.75
Manganese oxide	...	...	...	...	...	...	...	...	...	16.35
Potash	...	...	...	...	...	...	...	...	...	8.12
Soda	...	...	...	...	...	...	...	...	...	.53
Water	...	...	...	...	...	...	...	...	...	.89
										99.00

METEORITE.

Nickel iron	...	...	...	...	...	...	...	...	...	29.72
Triolite	...	...	...	...	...	...	...	...	...	6.02
Schreibersite	...	...	...	...	...	...	...	...	...	1.59
Silica and silicates	...	...	...	...	...	...	...	...	...	61.53
Carbon, oxygen, &c., and loss	...	...	...	...	...	...	...	...	...	1.14
										100.00

MESOLITE.

Silicic acid	...	...	...	...	...	...	...	...	...	46.583
Alumina, with traces of oxide of iron	...	...	...	...	...	...	...	...	...	27.566
Lime	...	...	...	...	...	...	...	...	...	9.105
Magnesia	...	...	...	...	...	...	...	...	...	.076
Soda	...	...	...	...	...	...	...	...	...	3.638
Specific gravity	...	...	...	...	...	...	...	...	...	2.18

MELJONITE.

Silica	...	...	...	...	...	...	...	43.36	Meljonite.	42.1
Alumina	...	...	...	...	...	...	...	32.09		31.9
Lime	...	...	...	...	...	...	...	21.45		26.0
Magnesia	...	...	...	...	...	...	...	.31	—	—
Potass	...	...	...	...	...	...	...	1.35	—	—
Soda	...	...	...	...	...	...	...	.76	—	—
Water	...	...	...	...	...	...	...	1.01	—	—
								100.33		

NAMAQUALITE.

Water	...	...	...	...	...	...	...	...	...	32.38
Copper	...	...	...	...	...	...	...	...	...	44.74
Alumina	...	...	...	...	...	...	...	...	...	15.29
Lime	...	...	...	...	...	...	...	...	...	2.01
Magnesia	...	...	...	...	...	...	...	...	...	3.42
Silica	...	...	...	...	...	...	...	...	...	2.25
										100.09

NEOGEN. An alloy resembling silver.

Copper	...	...	...	...	...	...	...	...	...	58.0
Zinc	...	...	...	...	...	...	...	...	...	27.0
Nickel	...	...	...	...	...	...	...	...	...	12.0
Tin	...	...	...	...	...	...	...	...	...	2.0
Aluminium	...	...	...	...	...	...	...	...	...	.5
Bismuth	...	...	...	...	...	...	...	...	...	.5
										100.0

NACRITE.

Silica	...	...	...	...	...	...	...	...	...	64.5
Alumina	...	...	...	...	...	...	...	...	...	28.9
Protoxide of iron	...	...	...	...	...	...	...	...	...	4.4

NACRITE, from Alps.

Silica	...	...	...	...	...	...	...	...	...	50.0
Alumina	...	...	...	...	...	...	...	...	...	26.0
Potash	...	...	...	...	...	...	...	...	...	17.5
Lime	...	...	...	...	...	...	...	...	...	1.5
Peroxide of iron	...	...	...	...	...	...	...	...	...	5.0

NATROLITE. *

Silica	...	...	...	...	...	...	...	...	...	38.3
Alumina	...	...	...	...	...	...	...	...	...	30.7
Lime	...	...	...	...	...	...	...	...	...	13.5
Soda	...	...	...	...	...	...	...	...	...	4.5
Water	...	...	...	...	...	...	...	...	...	13.1

NEPHRITE. Jade.

	1.	2.
Silica	59·30	59·50
Alumina	·53	·75
Peroxide of iron	—	—
Protoxide of iron	·70	1·35
Manganese oxide	·55	·79
Lime	10·47	11·60
Magnesia	25·64	24·24
Potash	1·02	1·57
Fluo-silicic acid	1·28	—
Water	·62	·85
	100·11	100·65

NEMALITE.

Magnesia	62·0
Protoxide of iron	4·6
Water	28·4
Carbonic acid	4·1

NEPHELINE.

Silica	43·4
Alumina	33·5
Peroxide of iron	1·5
Lime	·9
Soda	13·4
Potash	7·1
Water	1·4

OLIVINE. Vesuvius.

		Oligoclase.
Silica	42·30	63·5
Magnesia	51·64	·8
Ferric oxide	5·01	—
Alumina	·42	23·1
Lime	1·08	2·4
Potash	—	2·2
Soda	—	9·4

OPAL. From Abyssinia.

Soluble silicic acid	90.562
Insoluble silicic acid	2.049
Water	5.656
Peroxide of iron	.933
Oxide of manganese	trace
Oxide of calcium	.137
Oxide of magnesium	.311
	99.648

PORPHYRY.

Silicic acid	77.48
Alumina	17.10
Iron oxide	2.83
Manganese	.84
Lime	.38
Magnesia	.10
Potash	1.03
Soda	.13
Phosphoric acid	trace
	99.89

PARGASITE.

Silica	46.3
Magnesia	19.0
Lime	14.0
Alumina	11.5
Protoxide of iron	3.5
Protoxide of manganese	.4
Hydrofluoric acid and water	2.2

PARISITE.

Carbonic acid	23.5
Protoxides of cerium, lanthanum and didymium	59.4
Lime	3.2
Fluoride of calcium	11.5
Water	2.4

PECTOLITE.

Silica	...	...	...	...	...	...	...	...	...	51·3
Lime	...	...	...	...	...	...	...	...	...	33·8
Soda	...	...	...	...	...	...	...	...	...	8·3
Potash	...	...	...	...	...	...	...	...	...	1·6
Water	...	...	...	...	...	...	...	...	...	3·9

PETALITE.

Silica	...	...	...	...	...	...	...	...	...	79·2
Alumina	...	...	...	...	...	...	...	...	...	17·2
Lithia	...	...	...	...	...	...	...	...	...	5·8

PHENACITE.

Silica	...	...	...	...	...	...	...	...	...	55·1
Glucina	...	...	...	...	...	...	...	...	...	44·5
Magnesia and alumina	...	...	...	...	...	...	...	...	...	traces

PINITE.

Silica	...	...	...	...	...	...	...	...	...	56·0
Alumina	...	...	...	...	...	...	...	...	...	25·5
Potash and soda	...	...	...	...	...	...	...	...	...	8·0
Peroxide of iron	...	...	...	...	...	...	...	...	...	5·5
Magnesia and manganese	...	...	...	...	...	...	...	...	...	3·8
Water	...	...	...	...	...	...	...	...	...	1·4

PLAGIONITE.

Antimony	...	...	...	...	...	...	...	...	...	38·00
Lead	...	...	...	...	...	...	...	...	...	41·00
Sulphur	...	...	...	...	...	...	...	...	...	21·00

PLATIN-IRIDIUM.

Iridium	...	...	...	...	...	...	...	...	...	27·8
Platinum	...	...	...	...	...	...	...	...	...	55·5
Rhodium	...	...	...	...	...	...	...	...	...	6·9

POLYBASITE.

	1.	2.
Silver	66.50	68.34
Copper and arsenic...	.50	.64
Iron	5.00	—
Antimony... ..	10.00	14.60
Sulphur	12.00	16.42
Loss	6.00	—

PICKERINGITE.

Alumina	12.130
Magnesia	4.682
Iron and manganese	.430
Lime	1.260
Hydrochloric acid ...	.604
Sulphuric acid...	36.322
Water	45.450
	100.878

POTTERY. Pipe Clays.

	Forcha- moner.	Stras- burg.	Forges les eaux.	Ooteau de Prairie, N. America.	Eng- lish.
Silica	15.906	66.70	52.00	48.20	53.66
Alumina	11.170	18.29	27.00	28.20	32.00
Lime	—	—	—	2.60	.40
Magnesia	3.504	.60	—	6.00	trace
Potass	.786	—	—	—	—
Water	4.119	12.00	19.00	—	12.08
Oxide of iron	—	1.60	2.00	5.00	1.35
Oxide of manganese	—	—	—	.60	—
Residue	64.030	—	—	—	—
Loss	.485	.90	—	10.00	.51

POTTERY. Kaolin.

	Bluebarrow.	St. Stephens.
Silica	45.52	46.38
Alumina and oxide of iron	40.76	38.60
Lime	2.17	3.47
Alkalies	1.90	1.77
Magnesia, phosphoric acid and sulphuric acid }	traces	traces
Water and organic matter	9.61	9.08

POTTERY. Kaolin.

	St. Yriez.	Aus.	Passau.	Halle.
Silica... ..	47·09	47·64	43·65	39·62
Alumina	36·41	35·97	35·93	45·00
Potash	1·56	—	—	—
Magnesia	2·94	—	—	3·32
Lime	—	1·57	·88	·07
Oxide of iron	—	—	1·00	—
Oxide of manganese	—	—	—	·19
Water	12·00	13·18	18·50	10·00
Loss	—	1·64	·04	1·80

CORNISH STONE CLAY.

	1.	2.	3.
Silica	46·32	46·29	35·65
Alumina	39·74	40·09	32·50
Protoxide of iron	·27	·27	1·65
Lime	·36	·50	traces
Magnesia	·44	—	
Water	12·67	12·67	30·05
Loss	·20	·18	·15

POTTERY. Black glaze.

	1.	2.	3.
Silica	63·00	55·49	55·88
Alumina	20·00	19·21	18·88
Oxide of iron	4·00	16·55	15·80
Carbonate of lime	9·00	7·48	7·48
Magnesia	2·00	1·27	1·63
Water	2·00	—	—
Loss	—	—	·73
	100·00	100·00	100·00

ROMAN RED LUSTROUS POTTERY.

	1.	2.	3.
Silica	54·45	60·67	64·00
Alumina	22·08	20·96	17·77
Sesquioxide of iron	7·31	5·95	10·23
Lime	9·76	6·77	4·86
Magnesia	1·67	1·22	—
Water	—	—	2·29
Potassa	3·22	alkalies in small quantities.	
Soda	1·76		

POTTERY. Potter's Clays.

	French.			English.	Blue Clay.	Red Clay.
Silica	57·0	61·0	60·0	66·68	46·38	49·44
Alumina	37·0	30·0	24·0	26·08	38·04	34·26
Protoxide of iron	4·0	7·6	7·5	1·26	1·04	7·74
Lime	1·7	2·4	·5	·84	1·20	1·48
Water	—	—	—	5·14	13·44	1·94
Magnesia	—	—	—	trace	trace	5·14
Loss	—	—	—	—	—	—

	Yellow Clay.	English China Ware.		Berlin Ware.	Common English White Ware.
Silica	65·06	39·88	40·60	72·96	68·55
Alumina	30·68	21·48	24·15	24·78	29·13
Protoxide of iron	3·70	—	—	—	—
Lime	·56	10·06	14·22	1·04	1·24
Magnesia	—	—	·43	trace	—
Alkalies	—	2·14	5·28	1·22	—
Phosphate of lime	—	26·44	15·32	—	—

POTTERY. English tender porcelain.

	1.	2.	3.
Silica	39·88	40·60	39·685
Alumina	21·48	24·15	24·650
Lime	10·06	14·22	14·175
Protoxide of iron and phosphate of lime	26·44	15·32	15·386
Magnesia	—	·43	·311
Alkalies and loss	2·14	5·28	5·792

FOREIGN PORCELAIN.

	Berlin.	Chinese.	
Silica	72·96	71·04	68·96
Alumina and iron	24·78	22·46	29·24
Lime	1·04	3·82	1·60
Alkalies	1·22	2·68	—

POTTERY. Stoneware glazed.

	St. Amand.	Helsing- borg.	Voisinlieu.	Vauxhall.	Freehen.
Silica ...	75·00	74·60	74·30	74·00	64·01
Alumina ...	22·10	19·00	19·50	27·04	24·50
Oxide of iron	1·00	4·25	3·90	2·00	8·50
Lime ...	·25	·62	·50	·60	·56
Magnesia ...	trace	trace	·80	·17	·92
Alkalies ...	·84	1·30	·50	1·06	1·42
Loss ...	·81	·23	·50	·13	·09

Stoneware unglazed.

	Baltimore.	Wedgwood.	Saveignies.	Japan.	China.
Silica ...	67·40	66·49	65·80	62·04	62·00
Alumina ...	29·00	26·00	27·64	20·30	22·00
Oxide of iron	2·00	6·12	4·25	15·58	14·00
Lime ...	·60	1·04	1·12	1·08	·50
Magnesia ...	—	·15	·64	trace	trace
Alkalies ...	·60	·20	·24	trace	1·00
Loss ...	·40	—	·31	1·00	·50

POTTERY. Common earthenware or delftware.

	Italian.	Majolica.	Old Spanish.	Delft.	Persian.	Paris.
Silica ...	49·65	48·00	46·04	49·07	48·54	61·50
Alumina ...	15·50	17·50	18·45	16·19	12·05	12·99
Lime ...	22·40	20·12	17·64	18·01	19·25	16·24
Magnesia ..	·17	1·17	·87	·82	·30	·15
Oxide of iron	3·70	3·75	3·04	2·82	3·14	3·01
Carbonic acid	8·58	9·46	13·96	13·09	16·72	6·10

POTTERY. Italo-Greek vase.

Silica ...	...	...	...	...	...	55·49
Alumina ...	...	...	...	...	...	19·21
Oxide of iron	...	...	...	...	...	16·55
Carbonate of lime	...	...	...	...	...	7·48
Magnesia ...	...	...	...	...	...	1·76
						100·00

CAMPANIAN GLAZE.

Silica	...	...	...	...	...	...	...	...	...	46.30
Alumina	...	...	...	...	...	...	...	...	...	11.90
Lime	...	...	...	...	...	...	...	...	...	5.70
Soda	...	...	...	...	...	...	...	...	...	17.10
Oxide of iron	...	...	...	...	...	...	...	...	...	16.10
Loss	...	...	...	...	...	...	...	...	...	2.90
										100.00

POTTERY. Etruscan vase. Black.

Silica	...	...	...	...	...	...	...	...	...	63.24
Alumina	...	...	...	...	...	...	...	...	...	14.42
Oxide of iron and manganese	...	...	...	...	...	...	...	...	...	7.80
Carbonate of lime	...	...	...	...	...	...	...	...	...	3.25
Carbonate of magnesia	...	...	...	...	...	...	...	...	...	2.12
Carbon	...	...	...	...	...	...	...	...	...	1.83
Water	...	...	...	...	...	...	...	...	...	7.34
										100.00

SEVRES.

Silica	...	...	...	...	...	...	...	...	...	55.88
Alumina	...	...	...	...	...	...	...	...	...	18.88
Oxide of iron	...	...	...	...	...	...	...	...	...	15.80
Lime	...	...	...	...	...	...	...	...	...	7.48
Magnesia	...	...	...	...	...	...	...	...	...	1.63
Loss	...	...	...	...	...	...	...	...	...	.33
										100.00

PLATINUM ORES.

	1.	2.	3.	4.	5.
Platinum... ..	78.94	73.58	86.50	84.30	86.16
Palladium	.28	.30	1.10	1.06	.35
Rhodium	.86	1.15	1.15	3.46	2.16
Iridium	4.97	2.35	—	1.46	1.09
Osmium	—	—	—	1.03	.97
Iron	11.04	12.98	8.32	5.31	8.03
Copper	.70	5.20	.45	.74	.40
Manganese	—	—	—	—	.10
Osmium iridium ...	1.97	2.30	1.40	—	1.91
Grains of sand ...	—			—	
Lime	—	—	—	.12	—
Loss... ..	1.25	2.14	1.08	1.92	—
	100.00	100.00	100.00	100.00	101.17

PYROLUSITE.

Binoxide of manganese...	97·84	97·22
Baryta ...	·53	·66
Silica ...	·51	·55
Water ...	1·12	1·57
Chloride of calcium ...	—	traces
	100·00	100·00

POLLUX.

Silica ...	46·0
Potash ...	16·5
Soda ...	14·5

PRASEOLITE.

Silica ...	40·9
Alumina ...	28·8
Protoxide of iron ...	7·0
Magnesia ...	13·7
Water ...	7·4

PRENHITE.

Silica ...	43·00
Alumina ...	23·25
Lime ...	26·00
Protoxide of iron and manganese ...	2·25
Water ...	4·00

PYROPE, or Bohemian Garnet.

Silica ...	43·0
Alumina ...	22·3
Oxide of chromium ...	1·8
Magnesia ...	18·5
Protoxide of iron ...	8·7
Lime ...	5·7
Yttria ...	3·0

PHOLERITE.

Silicic acid	...	...	...	...	...	...	...	...	36·388
Aluminium oxide	..	...	...	...	...	...	...	...	34·594
Water, combined	...	...	...	...	...	...	...	...	13·294
Water, hygroscopic	...	...	...	...	...	...	...	...	15·019

99·245

Iron and manganese	...	...	...	...	...	...	...	...	traces
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RHODONITE.

Oxide of manganese	...	...	...	...	...	...	...	...	52·6
Silica...	...	...	...	...	...	...	...	...	39·6
Oxide of iron	...	...	...	...	...	...	...	...	4·6
Lime and magnesia	...	...	...	...	...	...	...	...	1·5
Water	...	...	...	...	...	...	...	...	2·7

RUBY.

Alumina	...	...	...	...	...	...	...	...	98·5
Oxide of iron	...	...	...	...	...	...	...	...	1·0
Lime	...	...	...	...	...	...	...	...	·5

RUTILE.

Titanium	...	...	...	...	...	...	...	...	61·0
Oxygen	...	...	...	...	...	...	...	...	39·0
Silica	...	...	...	...	...	...	...	...	—
Lime	...	...	...	...	...	...	...	...	—

REALGAR.

Sulphur	...	...	...	...	...	...	...	...	30·0
Arsenic	...	...	...	...	...	...	...	...	70·0

SAPONITE.

Silica	...	...	...	...	...	...	...	...	45·0
Magnesia	...	...	...	...	...	...	...	...	24·7
Alumina	...	...	...	...	...	...	...	...	9·3
Peroxide of iron	...	...	...	...	...	...	...	...	1·0
Potash	...	...	...	...	...	...	...	...	·7
Water	...	...	...	...	...	...	...	...	18·0

SAUSSARITE.

	1.	2.
Silica	49·00	48·86
Alumina	24·00	29·27
Lime	10·50	11·74
Magnesia	3·75	5·43
Peroxide of iron	6·50	1·67
Soda	5·50	3·58
Water	—	·50

SCAPOLITE.

Silica	41·25
Alumina	33·60
Lime	20·40
Protoxide of manganese	·50
Water	3·20

SCHILLER SPAR.

Silica	43·9
Magnesia	25·9
Oxide of iron and chromium	13·0
Water	12·4
Alumina	1·3
Lime	2·6
Protoxide of manganese	·5

STAUROTIDE.

Silica	37·50
Alumina	41·00
Protoxide of iron	18·25
Protoxide of manganese and magnesia	1·00

STEATITIC PSEUDOMORPHS.

Silica	34·7
Alumina	25·3
Lime	5·1
Magnesia	25·2
Water	9·1

STILBITE.

Silica	...	...	...	...	...	...	...	...	...	52·25
Alumina	...	...	...	...	...	...	...	...	...	18·75
Lime	...	...	...	...	...	...	...	...	...	7·40
Soda	...	...	...	...	...	...	...	...	...	2·40
Water	...	...	...	...	...	...	...	...	...	18·75

SHALE. Blue.

Silica	...	...	...	...	58·99
Alumina	...	...	...	...	26·19
Oxide of iron	...	...	...	...	10·25
Lime	...	...	...	...	·67
Magnesia	...	...	...	...	1·54
Potash	...	...	...	...	2·34
Soda	...	...	...	...	—
Loss	...	...	...	...	·02

100·00

SCHIST, Bituminous.

56·51
31·89
7·04
1·69
·85
1·38
·61
·03

100·00

SODALITE.

Silica	...	...	...	...	...	...	...	...	...	36·0
Alumina	...	...	...	...	...	...	...	...	...	32·6
Soda	...	...	...	...	...	...	...	...	...	26·5
Hydrochloric acid	...	...	...	...	...	...	...	...	...	5·3

SPHENE.

								1.	2.
Silica	...	...	...	...	...	...	...	34·2	30·5
Titanic acid	...	...	...	...	...	...	...	44·7	41·3
Lime	...	...	...	...	...	...	...	21·1	28·2

SPODUMENE.

Silica	...	...	...	...	...	...	...	...	65·3
Alumina	...	...	...	...	...	...	...	...	25·3
Lithia	...	...	...	...	...	...	...	...	6·8
Oxide of iron	...	...	...	...	...	...	...	...	2·8

SCHROETTERITE.

Silica	...	...	...	...	...	...	...	...	...	12·0
Alumina	...	...	...	...	...	...	...	...	...	46·3
Water	...	...	...	...	...	...	...	...	...	36·2
Iron, copper and lime	...	...	...	...	...	...	...	...	...	traces

SILLIMANITE.

Silica	...	...	...	...	...	...	...	...	...	37·70
Alumina	...	...	...	...	...	...	...	...	...	62·75
Oxide of iron	...	...	...	...	...	...	...	...	...	2·28

SERPENTINE. From Iona.

	1.	2.
Silicic acid	41·792	41·103
Iron protoxide...	2·537	5·734
Calcium oxide...	1·864	5·734
Magnesium oxide	39·262	32·882
Water	14·012	14·481
	99·467	99·934

SOMBRERITE.

Water	...	...	...	...	...	...	...	9·00
Phosphate of lime	...	...	...	...	...	...	...	65·00
Phosphate of alumina	...	...	...	...	...	...	...	17·00
Carbonate of lime	...	...	...	...	...	...	...	5·00
Chloride of sodium	...	...	...	...	...	...	...	1·44
Sulphate of lime	...	...	...	...	...	...	...	1·36
Silica	...	...	...	...	...	...	...	1·00
Orenate of ammonia	...	...	...	...	...	...	...	·20
								100·00

SODA. Nitrate.

	1.	2.	3.
Nitrate of soda	94·29	96·70	99·63
Nitrate of potassa	·43	—	—
Nitrate of magnesia	·86	—	—
Nitrate of lime	—	trace	trace
Chloride of sodium	1·99	1·30	·37
Sulphate of potass	·24	trace	—
Water	1·99	2·00	—
Insoluble matter	·20	—	—
	100·00	100·00	100·00

SODA. Phosphate of.

Soda	40.00
Phosphoric acid	45.62
Water	14.38
	100.00

SODIUM. Black Ash.

	1.	2.	3.
Sulphate of soda	1.99	3.64	.748
Chloride of sodium	2.54	.60	1.308
Carbonate of soda	23.57	9.89	41.489
Hydrate of soda	11.12	25.64	—
Carbonate of lime	12.90	15.57	.857
Oxysulphide of calcium	34.76	35.57	33.193
Sulphide of iron	2.45	1.22	—
Silicate of magnesia	4.74	.88	—
Charcoal	1.59	4.28	4.724
Sand	2.02	.44	2.259
Water	2.10	2.17	—
Loss	.22	—	—
Aluminate of soda	—	—	.392
Silicate of soda	—	—	1.162
Caustic lime	—	—	9.320
Sesquioxide of iron	—	—	3.020
Alumina	—	—	1.020
	100.00	100.00	100.00

SODA WASTE.

Carbonate of lime	19.56
Oxysulphide of calcium (3 Ca S + Ca O)	32.80
Sulphate of lime	3.69
Hydrosulphate of lime	4.12
Hydrate of lime	10.69
Bisulphide of calcium	4.67
Sulphide of calcium	3.25
Sulphide of sodium	1.78
Oxide of iron	3.70
Silicate of manganese	6.91
Charcoal	2.60
Sand	3.09
Water	3.45
	100.31

SODA ASH.

	1.	2.
Carbonate of soda	67·891	73·626
Hydrate of soda	14·245	13·600
Sulphate of soda	4·579	6·127
Chloride of sodium	6·061	4·431
Sulphide of sodium	·556	·361
Aluminate of soda	1·214	—
Silicate of soda	·389	·511
Insoluble matter	·217	1·579
Water	5·005	
Ultramarine	·140	—

SCORIA, found in flue of iron furnace, &c.

		Tapcinder.
Silica	29·60	23·86
Protoxide of iron	48·43	39·83
Sesquioxide of iron	17·11	23·75
Protoxide of manganese	1·13	6·17
Alumina	1·28	·91
Lime	·47	·28
Magnesia	·35	·24
Phosphoric acid	1·34	6·42
Sulphide of iron	1·61	·62
	101·32	102·08

SPINEL. Red variety.

Alumina	69·01
Magnesia	26·21
Protoxide of iron	·71
Oxide of chrome	1·10
Silica	2·02

SYNGENITE.

Lime	16·97
Magnesia	·46
Potash	28·03
Sulphuric acid	49·04
Water	5·81
	100·31

STEATITE.

Silica	...	...	...	...	...	...	...	...	...	62·2
Magnesia	...	...	...	...	...	...	...	...	...	30·5
Protoxide of iron	...	...	...	...	...	...	...	...	...	2·5
Water	...	...	...	...	...	...	...	...	...	5·0

TOURMALINE.

							Black.	Green.	Red.
Silica	...	...	...	...	...	...	37·70	39·16	38·38
Boracic acid	...	...	...	...	...	...	7·36	4·59	7·41
Alumina	...	...	...	...	...	...	34·53	40·00	43·97
Peroxide of iron	...	...	...	...	...	...	4·63	—	—
Protoxide of iron	...	...	...	...	...	...	·25	—	—
Magnesia	...	...	...	...	...	...	9·51	5·96	1·60
Lime	...	...	...	...	...	...	1·25	—	·62
Soda	...	...	...	...	...	...	2·00	—	1·97
Potash	...	...	...	...	...	...	·43	3·59	·21
Phosphorus	...	...	...	...	...	...	·11	—	·27
Flourine	...	...	...	...	...	...	2·23	—	2·47
Peroxide of manganese	...	...	...	...	...	...	—	2·14	2·60
Lithia	...	...	...	...	...	...	—	—	·48

TOURMALINE.

							Black.	Red.
Silica	...	...	...	...	...	...	36·71	39·4
Alumina	...	...	...	...	...	...	31·57	44·0
Peroxide of iron	...	...	...	...	...	...	9·30	—
Protoxide of manganese	...	...	...	...	...	...	8·51	—
Lime	...	...	...	...	...	...	·64	—
Magnesia	...	...	...	...	...	...	·49	5·0
Soda	...	...	...	...	...	...	2·83	—
Potash	...	...	...	...	...	...	·70	1·3
Glucina	...	...	...	...	...	...	5·56	—
Flourine	...	...	...	...	...	...	1·85	—
							98·16	
Boracic acid	...	...	...	...	...	...		4·2
Lithia	...	...	...	...	...	...		2·5

TUFA.

Silica	...	...	...	...	...	...	...	...	...	34·5
Alumina	...	...	...	...	...	...	...	...	...	15·0
Lime	...	...	...	...	...	...	...	...	...	8·8
Magnesia	...	...	...	...	...	...	...	...	...	4·7
Potash	...	...	...	...	...	...	...	...	...	1·4
Soda	...	...	...	...	...	...	...	...	...	4·1
Oxides of iron and titanium	...	...	...	...	...	...	...	...	...	12·0
Water	...	...	...	...	...	...	...	...	...	9·2

TUNGSTATE OF LIME.

Tungstic acid	...	...	...	...	...	...	...	...	...	7·80
Lime	...	...	...	...	...	...	...	...	...	19·06

TAPIOLITE.

Tantallic acid	...	...	...	...	...	...	...	...	...	73·91
Niobic acid	...	...	...	...	...	...	...	...	...	11·22
Stannic acid	...	...	...	...	...	...	...	...	...	·48
Protoxide of iron	...	...	...	...	...	...	...	...	...	14·47
Protoxide of manganese	...	...	...	...	...	...	...	...	...	·81
										100·89

TALC. North Carolina.

Silica	...	...	...	...	...	...	...	...	...	57·72
Magnesia	...	...	...	...	...	...	...	...	...	33·76
Alumina	...	...	...	...	...	...	...	...	...	2·52
Oxide of iron	...	...	...	...	...	...	...	...	...	·64
Water	...	...	...	...	...	...	...	...	...	6·01
										100·65

TABULAR SPAR.

Silica	...	...	...	...	...	...	...	...	...	52·0
Lime	...	...	...	...	...	...	...	...	...	48·0

TELLURIC SILVER.

Silver	...	...	...	...	...	...	...	...	...	62·3
Tellurium	...	...	...	...	...	...	...	...	...	36·9

THOMSONITE.

Silica	...	...	...	...	...	...	...	...	...	38.3
Alumina	...	...	...	...	...	...	...	...	...	30.7
Lime	...	...	...	...	...	...	...	...	...	13.5
Soda	...	...	...	...	...	...	...	...	...	4.5
Water	...	...	...	...	...	...	...	...	...	13.1

TRIPLITE.

Protoxide of manganese	...	...	...	...	...	...	...	...	32.6
Protoxide of iron	...	...	...	...	...	...	...	...	31.9
Phosphoric acid	...	...	...	...	...	...	...	...	32.8
Phosphate of lime	...	...	...	...	...	...	...	...	trace

TIN.

	Ordinary tin.	Common.	Bad.
Tin	99.76	98.64	95.00
Copper	.24	1.16	3.00
Lead	—	.20	1.50
Iron	trace	trace	—
Arsenic	trace	trace	trace
Loss	—	—	—
	100.00	100.00	100.00

TOPAZ.

	Yellow.
Silica	34.2
Alumina	57.5
Flourine	15.0

TETRAHEDRITE. Gray copper.

Sulphur	...	...	...	...	...	...	...	26.3
Copper	...	...	...	...	...	...	...	38.6
Antimony	...	...	...	...	...	...	...	16.5
Arsenic	...	...	...	...	...	...	...	7.2
Zinc, iron and silver	...	...	...	...	...	...	...	15.0

TELLURIUM, foliated.

Tellurium	...	...	...	...	...	...	...	32.2
Lead	...	...	...	...	...	...	...	54.0
Gold	...	...	...	...	...	...	...	9.0
Silver	...	...	...	...	...	...	...	} often met with.
Copper	...	...	...	...	...	...	...	
Sulphur	...	...	...	...	...	...	...	

ULTRAMARINE.

	1.	2.
Silicic acid	49·00	45·50
Sulphuric acid... ..	2·00	5·90
Alumina	11·00	31·80
Soda	8·00	9·10
Lime	16·00	3·50
Magnesia	2·00	—
Sesquioxide of iron	4·00	·80
Sulphur	trace	—
Water	trace	—
Chlorine	—	·40
Loss	8·00	2·00
	100·00	100·00

URANITE.

Phosphoric acid	15·0
Oxide of uranium	64·0
Lime	6·0
Water	15·0

VIVIANITE.

	Brown Crystalline.	No. 2.
Protoxide of iron	42·889	42·709
Peroxide of iron	·801	1·126
Phosphoric acid	28·792	28·526
Water	29·433	28·984
	101·915	101·345

WAVELLITE.

Alumina	37·2
Phosphoric acid	35·1
Water	28·0

WEISSITE.

Silica	53·7
Alumina	21·7
Magnesia	9·0
Potash	4·1
Soda	·7
Protoxide of iron, manganese and zinc	2·1

WICHTINE.

Silica	...	...	...	...	...	...	...	...	...	56·3
Alumina	...	...	...	...	...	...	...	...	...	13·3
Protoxide of iron	...	...	...	...	...	...	...	...	...	13·0
Peroxide of iron	...	...	...	...	...	...	...	...	...	4·0
Soda	...	...	...	...	...	...	...	...	...	3·5
Lime	...	...	...	...	...	...	...	...	...	6·0
Magnesia	...	...	...	...	...	...	...	...	...	3·0

WITHERITE.

Baryta	...	...	...	...	...	...	...	...	...	77·6
Carbonic acid	...	...	...	...	...	...	...	...	...	22·4

WOLFRAM.

Tungstic acid	...	...	...	...	...	...	...	...	...	75·89
Protoxide of iron	...	...	...	...	...	...	...	...	...	19·24
Protoxide of manganese	...	...	...	...	...	...	...	...	...	4·97

WOEHLERITE.

Niobic acid	...	...	...	...	...	...	...	...	...	14·41
Silicic acid	...	...	...	...	...	...	...	...	...	28·43
Zirconic acid	...	...	...	...	...	...	...	...	...	19·63
Lime	...	...	...	...	...	...	...	...	...	26·18
Protoxide of iron	...	...	...	...	...	...	...	...	...	2·50
Soda	...	...	...	...	...	...	...	...	...	7·78
										98·93

WAGNERITE.

Phosphoric acid	...	...	...	...	...	...	...	...	...	40·30
Magnesia	...	...	...	...	...	...	...	...	...	32·78
Lime	...	...	...	...	...	...	...	...	...	2·24
Potash and soda	...	...	...	...	...	...	...	...	...	5·12
Iron	...	...	...	...	...	...	...	...	...	8·00
Alumina	...	...	...	...	...	...	...	...	...	1·11
Flourine	...	...	...	...	...	...	...	...	...	10·00
Water	...	...	...	...	...	...	...	...	...	·50
										100·05

WOLLASTONITE.

Silica	...	...	...	...	...	...	...	...	...	46.2
Lime	...	...	...	...	...	...	...	...	...	41.8
Magnesia	...	...	...	...	...	...	...	...	...	1.5
Alumina	...	...	...	...	...	...	...	...	...	7.1
Sesquioxide of iron	...	...	...	...	...	...	...	...	...	2.9

WARWICKITE.

Boric acid	...	...	...	...	...	...	...	...	...	27.80
Titanic acid	...	...	...	...	...	...	...	...	...	23.82
Magnesia	...	...	...	...	...	...	...	...	...	36.80
Oxide of iron	...	...	...	...	...	...	...	...	...	7.02
Silica	...	...	...	...	...	...	...	...	...	1.00
Alumina	...	...	...	...	...	...	...	...	} impurities }	2.21

YENITE.

Oxide of iron	...	...	...	...	...	...	...	50 to 55 per cent.
Lime	...	...	...	...	...	...	...	14 "
Silica	...	...	...	...	...	...	...	29 "

YETTROCERITE.

Fluoric acid	...	...	...	...	...	...	...	...	25.1
Lime	...	...	...	...	...	...	...	...	47.6
Oxide of cerium	...	...	...	...	...	...	...	...	18.2
Yttria	...	...	...	...	...	...	...	...	9.1

ZIRCONIA.

Silica	...	...	...	...	...	...	...	...	33.5
Zirconia	...	...	...	...	...	...	...	...	67.2

ZENNERITE.

Uranium oxide	...	...	...	...	...	...	...	...	55.6
Copper oxide	...	...	...	...	...	...	...	...	8.7
Arsenic acid	...	...	...	...	...	...	...	...	15.1
Water	...	...	...	...	...	...	...	...	14.5
Iron oxide	...	...	...	...	...	...	...	...	5.2
Lime	...	...	...	...	...	...	...	...	1.2
									100.3

ZEOLITE, from Waago.

Silicic acid	56·300
Alumina	17·633
Lime	7·497
Magnesia	·051
Soda	2·094
Water	17·362
	100·937

ZINC ORES, Calamine.

	1.	2.
Carbonate of oxide of zinc	84·92	85·78
Carbonate of protoxide of iron	1·58	2·24
Carbonate of protoxide of manganese	6·80	7·62
Carbonate of oxide of lead	—	—
Carbonate of lime	1·58	·98
Carbonate of magnesia	2·84	4·44
Silicate of oxide of zinc	1·85	—
Silica	—	·09
Volatile matter	—	—
Loss	·43	—
	100·00	101·15

SPARTALITE, Oxide of zinc.

	1.	2.	3.
Oxide of zinc	94·45	96·19	93·48
Oxide of manganese	trace	3·70	5·50
Franklinite	4·49	—	—
Oxide of iron	—	·10	·80
Loss by ignition, &c.	1·06	·01	·22
	100·00	100·00	100·00

CARBONATE OF ZINC.

	1.	2.	3.
Oxide of zinc	64·8	65·2	57·76
Carbonic acid	35·2	34·8	35·62
Protoxide of manganese	—	—	6·62
Oxide of lead	—	—	—
Oxide of iron	—	—	—
	100·0	100·0	100·00

ZINC. Silicate of zinc or electric calamine.

	1.	2.	3.	4.
Oxide of zinc	66·84	66·0	68·3	66·8
Silica	24·89	25·0	25·0	23·2
Oxides of lead and tin	·28	—	—	—
Water	7·45	9·0	4·4	10·8
Carbonic acid	·54	—	—	—
Loss	—	—	3·3	—
	100·00	100·0	101·0	100·8

SULPHIDE OF ZINC.

	1.	2.	3.
Zinc	61·40	66·34	66·46
Iron	1·29	—	—
Cadmium	1·50	—	trace
Antimony, lead and oxygen... ..	—	—	—
Manganese	—	—	—
Sulphur	33·15	33·66	32·22
Water	—	—	—
Loss	2·66	—	1·32

MISCELLANEOUS VEGETABLE AND ANIMAL MATTERS.

ACACIA NILOLICA. Ash of seeds.

Potash	...	...	...	...	...	...	...	...	...	33·388
Soda	...	...	...	...	...	...	...	...	...	5·360
Lime	...	...	...	...	...	...	...	...	...	14·212
Magnesia	...	...	...	...	...	...	...	...	...	12·103
Oxide of iron	...	...	...	...	...	...	...	...	...	·612
Phosphoric acid	...	...	...	...	...	...	...	...	...	16·229
Sulphuric acid...	...	...	...	...	...	...	...	...	...	3·650
Silicic acid	...	...	...	...	...	...	...	...	...	1·809
Chlorine	...	...	...	...	...	...	...	...	...	·345
Carbonic acid	...	...	...	...	...	...	...	...	...	12·112
										99·820

AGARICUS FOETENS.

Water	...	...	...	...	...	...	...	...	...	67·20
Mannite	...	...	...	...	...	...	...	...	...	·60
Pectic acid	...	...	...	...	...	...	...	...	...	·09
Fibrine	...	...	...	...	...	...	...	...	...	4·66
Bassorine	...	...	...	...	...	...	...	...	...	1·55
Ligneous matter	...	...	...	...	...	...	...	...	...	20·09
Fat, acid, colouring matter, &c.	...	...	...	...	...	...	...	...	...	·68
Ash	...	...	...	...	...	...	...	...	...	5·13

ANNATTO. Ash of. 100 grains weighed 62·40

Carbonate of lime	37·88
Sulphate of lime	8·82
Alkaline sulphates	4·34
Chloride of sodium	6·42
Iron and alumina	2·14
Lead, traces, sand, &c.	2·80
	62·40

APPLEWOOD. Ash of.

Potash	19·24
Soda	·45
Magnesia	7·46
Lime	63·60
Phosphoric acid	4·90
Sulphuric acid... ..	·93
Silica	1·31
Peroxide of iron	1·66
Chloride of sodium... ..	·45
	100·00

ASH OF APPLE PUMICE.

Water	10·790
Organic matter	42·161
Insoluble silica	25·850
Soluble silica	·929
Oxide of iron and alumina	1·989
Lime	3·754
Magnesia	trace
Potash	5·488
Soda	2·942
Sulphuric acid... ..	·878
Phosphoric acid	2·577
Carbonic acid	1·920
Chlorine	·389
Loss	·333
	100·000

Opobalsam.

Volatile oil	...	...	...	...	...	...	...	...	30·00
Soft resin, insoluble in alcohol	...	...	...	...	...	...	...	...	4·00
Hard resin, soluble in alcohol	...	...	...	...	...	...	...	...	64·00
Extractive	...	...	...	...	...	...	...	...	·40
Loss	...	...	...	...	...	...	...	...	1·60

Benzoin.

	1.	2.
Benzoic acid	14·5	14·0
Resin, soluble in æther...	48·0	52·0
Resin soluble in alcohol only	28·0	25·0
Resin soluble in carbonate of soda	3·5	3·0
Brown resin deposited by æther...	·5	·8
Impurities	5·5	5·2

Canada.

Essential oil	...	...	...	...	...	...	...	18·60
Resin soluble in alcohol	...	...	...	...	...	...	...	40·00
Resin difficultly soluble	...	...	...	...	...	...	...	33·40
Elastic resin	...	...	...	...	...	...	...	4·00
Bitter extractive and salts	...	...	...	...	...	...	...	4·00

COPAIBA.

Volatile oil	...	...	...	...	...	...	...	38·00
Copaivic acid	...	...	...	...	...	...	...	52·75
Brown soft resin	...	...	...	...	...	...	...	1·66
Water and loss	...	...	...	...	...	...	...	7·59

BLOOD. Human and healthy.

Water	...	...	...	...	...	...	...	...	...	780·15
Fibrine	...	...	...	...	...	...	...	...	...	2·10
Albumen	...	...	...	...	...	...	...	...	...	65·09
Colouring matter	...	...	...	...	...	...	...	...	...	133·00
Crystallizable fat	...	...	...	...	...	...	...	...	...	2·43
Fluid fat	...	...	...	...	...	...	...	...	...	1·31
Extractive matter, soluble in water and alcohol	...	...	...	...	...	...	...	...	...	1·79
Albumen in combination with soda	...	...	...	...	...	...	...	...	...	1·26
Chlorides of sodium and potassium, carbonates, phosphates and sulphates of potash and soda										8·37
Carbonates of lime and magnesia, phosphates of lime, magnesia and iron, sesquioxide of iron										2·10
Loss	...	...	...	...	...	...	...	...	...	2·40
										1000·00

BLOOD.

	Arterial Blood.	Venous Blood.
Water	760·084	757·351
Solid residue	239·952	242·649
Fibrine	11·200	11·350
Fat	1·856	2·290
Albumen	78·880	85·875
Globulin	136·148	128·698
Hæmatin	4·872	5·176
Extractive matter and salts...	6·960	9·160
	*	†

* 100 parts of the blood corpustules contain 3·4 of hæmatin.

† 100 parts of the blood corpustules contain 3·9 of hæmatin.

HEMOGLOBIN. From Blood.

Oxygen	...	...	...	...	...	...	...	...	54·20
Hydrogen	...	...	...	...	...	...	...	...	7·20
Iron	...	...	...	...	...	...	...	...	·42
Nitrogen	...	...	...	...	...	...	...	...	16·00
Oxygen	...	...	...	...	...	...	...	...	21·50
Sulphur	...	...	...	...	...	...	...	...	·70

BLOOD.

							Albumen of Blood.	Fibrine of Blood.
Sulphur	...	...	...	...	...	...	1.30	1.0
Carbon	...	...	...	...	...	...	53.50	53.2
Nitrogen	...	...	...	...	...	...	15.50	17.2
Hydrogen...	...	...	...	...	...	...	7.16	6.9
Oxygen	...	...	...	...	...	...	22.54	21.7
							100.00	100.0
							Chondrine.	Gelatinous Tissue.
Carbon	...	...	...	...	...	...	49.2	49.4
Nitrogen	...	...	...	...	...	...	14.6	18.5
Hydrogen...	...	...	...	...	...	...	6.9	6.9
Oxygen	...	...	...	...	...	...	29.3	25.2
							100.0	100.0

BLOOD. Fish.

							Carp.	Tench.
Water	...	...	...	...	...	...	872.000	900.000
Solid constituents	...	...	...	...	...	...	128.000	100.000
Fibrine	...	...	...	...	...	...	trace	trace
Fat	...	...	...	...	...	...	2.967	4.670
Albumen	...	...	...	...	...	...	83.850	68.800
Hæmatoglobulin	...	...	...	...	...	...	24.635	15.650
Extractive matter and salts...	...	...	...	...	...	...	6.129	2.770

BLOOD. Ashes of.

			Sheep.	Ox.	Dog.	Pig.
Phosphoric acid	...	...	14.80	14.04	36.82	36.5
Alkalies	...	...	55.79	59.97	55.24	49.8
Alkaline earths	...	...	4.87	3.64	2.07	3.8
Carbonic acid	...	...	19.47	18.85	—	—
Silicic and sulphuric acids	...	...	—	—	5.87	9.9
			Fowl.	Human.	Calves.	Sheep.
Phosphoric acid	...	...	47.26	31.78	20.14	14.80
Alkalies	...	...	48.41	58.99	66.57	60.57
Alkaline earths	...	...	2.22			
Carbonic acid	...	...	—	3.78	9.84	19.47
Silicic and sulphuric acids	...	...	2.11	—	—	—

BLOOD.

		From cases of Typhoid Fever.	
		1.	2.
Density of defibrinated blood	...	1054·00	1051·400
Density of serum	...	1025·00	1024·700
Water	...	801·00	814·500
Solid constituents	...	199·00	185·500
Fibrine	...	2·30	1·300
Fat	...	1·52	1·408
Albumen	...	64·40	62·000
Blood corpuscles	...	124·50	113·500
Extractive matter and salts...	...	6·00	7·300
Salts consist of :			
Chloride of sodium...	...	3·60	3·50
Other soluble salts...	...	2·60	2·70
Phosphates	...	·54	·25
Iron	...	·58	·51
		From Cholera.	From Dropsy.
Water	...	740·000	885·3
Solid residue	...	260·000	114·7
Fibrine	...	11·000	6·2
Albumen	...	110·420	—
Blood corpuscles	...	124·460	56·4
Extractive matter and salts...	...	14·100	—
		From Diabetes.	
		1.	2.
Water	...	794·663	802·000
Solid constituents	...	205·337	198·000
Fibrine	...	2·432	2·030
Fat	...	2·010	2·250
Albumen	...	114·570	97·450
Globulin	...	66·000	74·350
Hæmatin	...	5·425	3·700
Sugar...	...	2·500	traces
Extractive matter and salts...	...	9·070	12·680

BLOOD.

		Dog, 3 months old.	Dog, 1 day old.
Water	...	830·0	780·0
Solid residue	...	170·0	220·0
Fibrine	...	2·4	2·0
Blood corpuscles	...	97·0	165·0
Albumen	...	58·6	46·0
Extractive matter and salts...	...	12·0	7·0

BLOOD.

	In Pneumonia.		
	1.	2.	3.
Water	839·848	803·179	803·400
Solid residue	160·152	196·821	196·600
Fibrine	9·152	5·632	3·443
Fat	2·265	4·336	·697
Albumen	100·415	121·721	102·100
Globulin	34·730	52·071	74·948
Hæmatin	1·800	2·752	2·466
Extractive matter and salts...	8·003	10·309	11·258

No. 1 from a female aged 40.

No. 2 from a male aged 40.

No. 3 from a male aged 60.

BLOOD. From two Horses.

	Arterial.	Vena portæ.
Water	760·084	724·972
Solid residue	239·952	257·028
Fibrine	11·200	8·370
Fat	1·856	3·186
Albumen	78·880	92·400
Globulin	136·148	152·592
Hæmatin	4·827	6·600
Extractive matter and salts... ..	6·960	11·880

100 parts blood corpuscles con- }		
tain of hæmatin }	3·400	4·100

HUMAN BLOOD.

Water	798·402
Solid constituents	201·598
Fibrine	2·233
Fat	1·970
Albumen	74·194
Blood corpuscles	116·529
Soluble salts—Alkaline phosphates	·823
Alkaline sulphates	·202
Alkaline carbonates	·957
Chloride of sodium	4·690
Insoluble salts—Peroxide of iron	·834
Lime	·183
Phosphoric acid	·201
Sulphuric acid	·052
	6·672
	1·270

BLOOD.

	Water.	Fibrine.	Fat.	Blood Corpuscles.	Albumen.	Soluble Salts.
Dog ...	790·50	1·93	2·25	123·85	65·19	6·28
Cat ...	810·02	2·42	2·70	113·39	64·46	7·01
Horse ...	804·75	2·41	1·31	117·13	67·85	6·82
Ox ...	799·59	3·62	2·04	121·86	66·90	5·98
Calf ...	826·71	5·76	1·61	102·50	56·41	7·00
Goat...	839·44	3·90	·91	86·00	62·70	7·04
Sheep ...	827·76	2·97	1·16	92·42	68·77	6·91
Rabbit ...	817·30	3·80	1·90	170·72		6·28
Swine ...	768·94	3·95	1·95	145·35	72·78	6·74
Goose ...	814·88	3·46	2·56	121·45	50·78	6·87
Hen ...	793·24	4·67	2·03	144·75	48·25	6·97

Soluble salts :—

	Alkaline Phosphates.	Alkaline Sulphates.	Alkaline Carbonates.	Chloride of Sodium.
Dog ...	·730	·197	·789	4·490
Cat ..	·607	·210	·919	5·274
Horse ...	·844	·213	1·104	4·659
Ox ...	·468	·181	1·071	4·321
Calf ...	·957	·269	1·263	4·864
Goat ...	·402	·265	1·202	5·176
Sheep ...	·395	·348	1·498	4·895
Rabbit ...	·637	·202	·970	4·092
Swine ...	1·362	·189	1·198	4·281
Goose ...	1·135	·090	·824	4·246
Hen ...	·945	·100	·350	5·392

BRAIN. No. 1.

Water ...	80·00
Albumen ...	1·00
Cephalin ...	7·00
Cholestrin ...	1·00
Cerebin ...	3·00
Lecithin ...	5·50
Olien and margarine ...	—
Inosite, creatine, xanthine, &c. ...	—
Extractive matters...	1·50
Chlorides of potassium and sodium, phosphates of potassium, calcium, &c. ...	1·00
	100·00

BRAIN. No. 2.

	Water.	Albumen.	Fat.	Osmazone and salts.	Phos- phorus.
Infants	82·79	7·00	3·45	5·96	·80
Youths	74·26	10·20	5·30	8·59	1·65
Adults	72·51	9·40	6·10	10·19	1·80
Aged persons ...	73·85	8·65	4·32	12·18	1·00
Idiots	70·93	8·40	5·00	14·82	·85

BILE. In 1000 parts.

Water	909·0
Yellow and very bitter resin	37·3
Brown pigment and mucus	9·0
Albumen	38·2
Soda, holding the resin in solution	5·1
Salts of potash, soda and oxide of iron	4·1

BLUEBOTTLE, Common. Ash of. "Centauréa."

Potash	7·32
Soda	36·54
Lime	4·56
Phosphoric acid	15·49
Sulphuric acid... ..	2·69
Silica	3·29
Chloride of sodium	—
Peroxide of iron	1·61
Chloride of potassium	11·88

BEETROOT TOPS. Ash of.

Potash	21·26
Soda	7·01
Magnesia	8·66
Lime	8·65
Phosphoric acid	5·15
Sulphuric acid... ..	5·80
Silica... ..	1·99
Peroxide of iron	·96
Chloride of sodium	33·96
Carbonic acid, mean of six analyses	6·49

BEECHWOOD BARK. Ash of. No 1.

Alkalies and their salts... ..	34.88
Phosphates of lime and magnesia	4.50
Phosphates of iron and alumina... ..	.12
Carbonates of lime and magnesia	59.00
Silica... ..	1.50
	100.00

BEECHWOOD. Ash of.

	White wood.	Sap.
Alkalies and their salts... ..	48.63	47.00
Phosphates of lime and magnesia	23.00	36.00
Phosphates of iron and alumina... ..	2.25	1.00
Carbonates of lime and magnesia	26.00	15.00
Silica... ..	.12	1.00
	100.00	100.00

BEECHWOOD. Ash of.

Water and loss	2.58
Carbonate of potash	11.72
Carbonate of soda	12.37
Sulphate of potash... ..	3.49
Salt	—
Sulphate of soda	—
Silicate of soda	—
Carbonate of lime	49.54
Magnesia	7.74
Phosphate of lime	3.32
Phosphate of magnesia	2.92
Phosphate of iron	.76
Phosphate of alumina	1.51
Phosphate of manganese	1.59
Silica... ..	2.46
	100.00

BEECH BARK. Ash of. No. 2.

Water and loss	...	...	...	...	...	...	1·61
Carbonate of potash, carbonate of soda, sulphate	}	...	...	...	...	...	3·02
of potash		...	...	...	...	...	
Carbonate of lime	...	...	...	...	...	...	64·76
Magnesia	...	...	...	...	...	...	16·90
Phosphate of lime	...	...	...	...	...	...	2·71
Phosphate of magnesia	...	...	...	...	...	...	·66
Phosphate of iron	...	...	...	...	...	...	·46
Phosphate of alumina	...	...	...	...	...	...	·84
Silica...	...	...	...	...	...	...	9·04
							100·00

BRASS.

Copper	...	...	...	...	61·6	65·8	64·8	64·6
Zinc	...	...	...	...	35·3	31·8	32·8	33·7
Lead	...	...	...	...	2·9	2·2	2·0	1·5
Tin	...	...	...	...	·2	·2	·4	·2

WIRE BRASS.

Copper	...	...	...	...	...	66·2	67·0	Bell metal. 80·0
Zinc	...	...	...	...	...	33·0	32·0	5·6
Tin	...	...	...	...	...	}	·8	10·0
Lead	...	...	...	...	...		·5	4·3
Antimony...	...	...	...	...	...	—	·5	—

GERMAN SILVER.

Copper	...	...	...	43·8	40·4	53·4	50·0	65·4
Nickel	...	...	...	15·6	31·6	17·5	18·7	16·8
Zinc	...	...	...	40·6	25·4	29·1	31·3	13·4
Iron	...	...	...	—	2·6	—	—	3·4

CHYLE.

Water	...	...	...	...	...	...	940·670
Solid matters	...	...	...	...	...	...	59·330
Fibrine	...	...	...	...	...	...	·440
Fat	...	...	...	...	...	...	1·186
Albumen	...	...	...	...	...	...	42·717
Hæmatoglobulin	...	...	...	...	...	...	·474
Extractive matter and salts...	...	...	...	...	...	...	8·360
Ptyalin and globulin, or casein with lactate of soda	...	...	...	...	...	...	1·780

CARTILAGE. Ash of.

	Of man.	Woman.
Carbonate of soda	35·10	trace
Sulphate of soda	24·20	·95
Chloride of sodium... ..	8·20	1·30
Phosphate of soda	·90	trace
Sulphate of potash... ..	1·20	soda ·95
Carbonate of lime	18·30	—
Phosphate of lime	4·10	6·33
Phosphate of magnesia	6·90	4·10
Peroxide of iron and loss	·90	—

CHAMOMILE, Common and Wild. Ash of.

	Common.	Wild.
Potash	9·66	9·69
Soda	30·58	32·39
Lime	3·67	4·79
Phosphoric acid	16·01	16·42
Sulphuric acid... ..	4·60	4·34
Silica... ..	6·80	1·53
Peroxide of iron	3·28	1·65
Chloride of potassium	7·15	14·26

CORNCOCKLE. Ash of.

Potash	13·20
Soda	22·86
Lime	6·14
Phosphoric acid	29·27
Sulphuric acid... ..	2·39
Silica... ..	2·39
Peroxide of iron	1·21
Chloride of sodium	—
Chloride of potassium	7·55

CHESTNUT, Horse. Ash of.

Potash	51·00
Alkaline phosphates	28·00
Chloride of potassium and sulphate of potash... ..	3·00
Earthy phosphates... ..	12·00
Silica... ..	·50
Metallic oxides	·25
Loss	5·25
	100·00

CITRUS MEDICA SEEDS. Ash of.

Potash	33·89
Soda	3·56
Magnesia	8·67
Lime	12·87
Phosphoric acid	34·81
Sulphuric acid	3·30
Silica	·35
Peroxide of iron	·24
Chloride of sodium	2·31
	100·00

COUCH GRASS. Ash of.

Carbonate of potash	14·10
Silicate of potash	·27
Silicate of soda	5·69
Silicate of magnesia	·04
Chloride of sodium	3·34
Oxide of iron and alumina	12·40
Phosphoric acid	9·38
Sulphate of lime	9·06
Carbonate of lime	3·30
Soluble silica	24·92
Insoluble silica	17·50
	100·00

DYEING. Catechu.

	Bombay.	Bengal.
Tannic acid	54·5	48·5
Extractive matter	34·0	36·5
Mucilage	6·5	8·0
Insoluble matters	5·0	7·0

MALABAR CUTCH.

Tannic acid	...	...	...	...	...	...	...	45·8
Extractive matter	...	...	...	...	...	...	...	39·9
Mucilage	...	...	...	...	...	...	...	8·0
Impurities	...	...	...	...	...	...	...	6·3

COCHINEAL.

Colouring matter	..	...	...	...	...	...	...	50·00
Gelatin	...	...	...	...	...	...	...	10·50
Waxy fat	...	...	...	...	...	...	...	10·00
Modified mucus	...	...	...	...	...	...	...	14·00
Membrane	...	...	...	...	...	...	...	14·00
Alkaline phosphates and phosphates of lime, iron and ammonia	...	...	...	...	...	...	...	1·50

CROTON OIL SEED.

Volatile oil	...	...	...	...	...	...	...	traces
Fixed oil, with crotonic acid, &c.	...	...	...	...	...	...	...	17·00
Crotonates and colouring matter	...	...	...	...	...	...	...	·32
Brownish yellow resin	...	...	...	...	...	...	...	1·00
Stearin and wax	...	...	...	...	...	...	...	·65
Extractive sugar and malates of potash and lime	...	...	...	...	...	...	...	2·05
Starch, with phosphates of lime and magnesia	...	...	...	...	...	...	...	5·71
Gum and gummosin	...	...	...	...	...	...	...	10·17
Albumen	...	...	...	...	...	...	...	1·01
Gluten	...	...	...	...	...	...	...	2·00
Ligneous fibre, &c.	...	...	...	...	...	...	...	38·00
Water	...	...	...	...	...	...	...	22·09

100·00

COD LIVER OIL.

	Pale oil.	Brown oil.	Black oil.
Oleic acid, with gaduin and } two other bodies... ..	74·03300	71·75700	69·78500
Margaric acid	11·75700	15·42100	16·14500
Glycerine	10·17700	9·07300	9·71100
Butyric acid	·07436	—	·15875
Acetic acid	·04571	—	·12506
Fellinic acid and cholic acid, } with a small quantity of margarin, olein, &c. ...	·04300	·06200	·29900
Bilifuloin, bilifellinic acid } and two peculiar substances	·26800	·44500	·87600
Substance soluble in alcohol	·00600	·01300	·03800
Substance insoluble in water, } alcohol and ether ...	·00100	·00200	·00500
Iodine	·03740	·04060	·02950
Chlorine and traces of bromine	·14880	·15880	·08400
Phosphoric acid	·09135	·07890	·05365
Sulphuric acid	·07100	·08595	·01010
Phosphorus	·02125	·01136	·00754
Lime	·15150	·16780	·08170
Magnesia	·00880	·01230	·00380
Soda	·05540	·06810	·01790
Iron	—	—	a trace
Loss	3·00943	2·60319	2·56900
	100·00000	100·00000	100·00000

DOTTER SEED.

Water	5·75
Oil	28·18
Albuminous compounds	28·31
Gum, sugar, &c.	12·16
Fibre	9·05

CONCRETIONS. Gouty.

	1.	2.
Uric acid	16·7	20·0
Soda	16·7	20·0
Lime	8·3	10·0
Chloride of sodium	16·7	18·0
Chloride of potassium	—	2·2
Animal matter	16·7	19·5
Water	8·3	10·3

CONCRETIONS. Intestinal, Horses.

	1.	2.
Ammoniaco magnesian phosphate	93·10	93·02
Phosphate of lime	1·18	1·01
Alcoholic extract	·43	·41
Potass extract... ..	·36	·33
Chloride of sodium	·63	sand 40
Phosphate of soda	·31	·51
Water, fibre, iron and loss	3·99	4·32

ELDER BARK. Ash of.

Potash	13·956
Soda	·965
Lime	30·924
Magnesia	10·730
Alumina	·250
Oxide of iron	·350
Chlorine	·179
Sulphuric acid... ..	5·818
Phosphoric acid	8·045
Silicic acid	5·455
Carbonic acid	23·274
	99·946

ERGOT. Ash of.

Potash	38·97
Soda	12·12
Magnesia	4·58
Lime	1·43
Phosphoric acid	13·24
Sulphuric acid... ..	·02
Silica... ..	9·13
Phosphate of iron	2·00
Chloride of sodium	3·36

ELMWOOD. Ash of.

		Bark.
Potash	21·92	2·22
Soda	13·72	10·09
Magnesia	7·71	3·19
Lime	47·80	72·70
Phosphoric acid	3·33	1·59
Sulphuric acid... ..	1·28	·62
Silica... ..	3·07	8·77
Peroxide of iron	1·17	·82
Chloride of sodium	—	—
	100·00	100·00

ESPARSETTE.

Potash	6·75
Soda	20·33
Magnesia	8·57
Lime	31·01
Phosphoric acid	26·10
Sulphuric acid... ..	1·68
Silica... ..	1·10
Peroxide of iron	2·28
Chloride of sodium	2·18
	100·00

EYES. Crystalline lens.

	Ox.	Horse.
Water	65·762	60·000
Albumen	23·290	25·531
Crystallin	10·480	14·200
Fat	·045	·142
Extractive matter and chloride of sodium and lactates	·495	·426

	Opaque lens of a bear.	Opaque lens of a horse.
Phosphate of lime	68·90	57·40
Carbonate of lime	12·60	1·60
Carbonate of magnesia	3·60	—
Peroxide of iron and manganese... ..	·70	—
Mucus (?)	7·50	albumen 29·30
Phosphate of lime and animal matter	2·10	—
Chloride of sodium and animal matter	3·20	—
Solid fat	1·10	—

EDIBLE EARTH, from Neograd in Hungary.

Carbonic acid	40·357
Lime	51·488
Magnesia	·110
*Volatile matter	5·545
Ferrous oxide	·158
Alumina	2·272
Water	·067
*Nitrogen... ..	·010

FLAG, Sweet. Ash of.

Potash	6·90
Soda	32·93
Lime	7·70
Phosphoric acid	11·48
Sulphuric acid... ..	5·06
Silica... ..	2·39
Peroxide of iron	1·91
Chloride of potassium	14·66
Chloride of sodium... ..	2·84

FLAX. Ash of whole plant.

Potash	·57
Soda	9·82
Magnesia	7·79
Lime	12·33
Phosphoric acid	10·84
Sulphuric acid... ..	2·65
Silica... ..	21·35
Chloride of potassium	3·22

FOXGLOVE SEED. Ash of.

Potash	Seed. 43·53
Soda	3·70
Magnesia	6·53
Lime	15·65
Phosphoric acid	1·68
Sulphuric acid... ..	3·91
Silica... ..	12·78
Peroxide of iron	3·19
Chloride of sodium	9·03

100·00

FIRWOOD. Ash of.

		Bark.
Carbonate of potash	11·30	2·95
Carbonate of soda	7·42	
Carbonate of lime	50·94	64·98
Magnesia	5·60	·93
Phosphate of lime	3·43	5·03
Phosphate of magnesia	2·90	4·18
Phosphate of iron	1·04	1·04
Phosphate of alumina	1·75	2·42
Silica	13·37	17·28
Water and loss	2·25	1·79
	100·00	

FERN. Ash of.

	Rhine.	Common.
Sulphate of potash	3·3	·70
Chloride of potassium	9·0	trace
Carbonate of potash	16·7	—
Silica	16·5	73·00
Carbonate of lime	43·4	24·80
Phosphate of lime	10·0	1·00
Magnesia	·2	·50
Oxide of iron	·7	—
Oxide of manganese	·2	—
	100·00	100·00

GALLS.

Tannic acid	65·0
Gallic acid	2·0
Ellagic and luteogallic acids	2·0
Brown extractive matter	2·5
Gum	2·5
Starch	2·0
Sugar	1·3
Chlorophyle and volalite oil	·7
Woody fibre	10·5
Water	11·5
Albumen and salts	—
	100·00

GALLS. Aleppo.

Tannin	26·0
Gallic acid	6·2
Ellagic acid	—
Brown extractive	—
Starch	—
Gum	2·4
Sugar	—
Chlorophyle and volatile oil... ..	—
Woody fibre	65·4
Water	—
	100·0

GLYCERIN.

Carbon	39·130
Hydrogen... ..	7·609
Oxygen	43·478
Water	9·783
	100·000

GUM. Olibanum.

Resin... ..	56·0
Gum	30·0
Volatile oil	8·0
Matter like gum insoluble	5·2
Loss	·8
	100·0

GUM. Opoponax.

Resin... ..	42·0
Gum	33·4
Liguin	9·8
Starch	4·2
Wax	·3
Extractive	1·6
Mallic acid	2·8
Volatile oil and loss	5·9
	100·0

GUM. Sagapenum.

Resin...	...	...	...	...	...	...	...	...	...	50.0
Gum, with lime salts	...	...	...	...	...	...	...	...	...	32.5
Volatile oil	...	...	...	...	...	...	...	...	...	3.5
Bassorin	...	...	...	...	...	...	...	...	...	4.2
Malate and phosphate of lime	...	...	...	...	...	...	...	...	...	1.1
Impurities	...	...	...	...	...	...	...	...	...	4.2
Water	...	...	...	...	...	...	...	...	...	4.5
										100.0

GUM. Gamboge.

	Pipe.	Cake.	Coarse.
Resin...	72.5	64.7	48.2
Soluble gum	22.7	20.3	15.2
Woody fibre	trace	5.3	13.3
Fecula	—	5.6	14.5
Moisture	4.8	4.1	8.8

GUM. Myrrh.

	1.	2.
Volatile oil	2.60	2.5
Resin...	27.80	23.0
Soluble gum	54.38	46.0
Insoluble gum	9.32	12.0
Salts	1.36	—
Impurities	1.60	16.5
Loss	2.94	
		100.00
		100.0

GUM. Ammoniacum.

Resin...	...	...	...	...	...	...	...	...	...	70.00
Gum ...	...	...	...	...	...	...	...	...	...	18.40
Gluten	...	...	...	...	...	...	...	...	...	4.40
Water	...	...	...	...	...	...	...	...	...	6.00
Loss ...	...	...	...	...	...	...	...	...	...	1.20
										100.00

GUM. Assafostida.

Resin...	48.5
Gum, with traces of saline matters	19.0
Bassorin	6.4
Volatile oil	4.5
Extractive, with saline matters	1.4
Sulphate and carbonate of lime	9.3
Oxide of iron and alumina	.4
Sand and lignin	4.5
Water	6.0
	100.0

GUM. Bdellium,

Resin...	59.0
Soluble gum	9.2
Bassorin	30.6
Volatile oil and loss	1.2
	100.0

GUM. Galbanum.

Resin...	65.8
Gum	22.6
Bassorin	1.8
Volatile oil	3.4
Bitter matter and malic acid	.2
Vegetable remains	2.8
Water	2.0
Loss	1.4
	100.0

GUM. Mezgnite.

Arabin	84.967
Bassorin	.206
Water	11.640
Inorganic matter	3.000
Impurities	.236
	100.049

GUM. Tragacanth.

Tragacanthin or arabin	53·3
Bassorin and starch	33·1
Water	11·1
Inorganic matter	2·5
	100·0

GUM. Arabic.

	1.	2.	3.
Carbon	41·906	41·4	45·10
Hydrogen	6·788	6·5	6·10
Oxygen	51·306	52·1	48·80
	100·00	100·0	100·00

GUM. Butea.

Gum, with gallic acid and other soluble substances	73·26
Tannic acid	21·67
Soluble extractive	5·07
	100·00

GUM. Kino.

Tannic acid and peculiar extractive	75
Red gum	24
Insoluble matter	1
	100

GRAPE MUST. Ash of unripe purple Burgundy.

	1.	2.
Potash	66·33	36·9
Soda	·33	·4
Lime	5·20	10·7
Magnesia	3·27	2·2
Oxide of manganese	·82	
Iron	·73	3·4
Sulphuric acid... ..	5·19	5·4
Chlorine	·74	·4
Silica	1·99	15·3
Phosphoric acid	15·38	
Carbonic acid		12·4

GUTTA PERCHA.

Pure gutta-percha	79·70
Soft resin... ..	15·10
Vegetable fibre	2·18
Moisture	2·50
Ash	·52
	100·00

GLUTEN. Ash of.

Potash	7·87
Soda	2·14
Lime	17·31
Magnesia	12·08
Peroxide of iron	7·13
Phosphoric acid	52·08
Sulphuric acid... ..	·69
Chlorine	·09

GASTRIC JUICE OF A HORSE.

Water	984·00
Solid residue	16·00
Organic matters	10·52
Salts soluble in water	5·02
Salts insoluble in water	·46

HAIR.

Color.	Ash.	Soluble portion.	Insoluble portion.	Peroxide of iron.
Brown hair	·54	·17	·312	·058
Brown hair	1·10	·51	·200	·395
Black hair	1·02	·29	·516	·214
Red hair	1·30	·93	·200	·170
Red hair	·54	·27	—	·275
Grey hair	1·00	·24	·528	·232

The soluble portion consists of chloride of sodium, sulphate of lime, and sulphate of magnesia. The insoluble portion is phosphate of lime and silica.

HIBISCUS ESCULENTENS. Egypt Bammgé.

Potash	...	...	...	...	...	...	...	...	...	38·842
Soda	...	...	...	...	...	...	...	...	...	4·576
Lime	...	...	...	...	...	...	...	...	...	7·813
Magnesia	...	...	...	...	...	...	...	...	...	12·021
Oxide of iron	...	...	...	...	...	...	...	...	...	·861
Phosphoric acid	...	...	...	...	...	...	...	...	...	24·690
Sulphuric acid...	...	...	...	...	...	...	...	...	...	·561
Silicic acid	...	...	...	...	...	...	...	...	...	·747
Chlorine	...	...	...	...	...	...	...	...	...	1·537
Carbonic acid	...	...	...	...	...	...	...	...	...	8·252
										99·900

HYOSCYAMUS NIGER. Ash of.

Potash	...	...	...	...	...	...	...	...	...	17·54
Soda	...	...	...	...	...	...	...	...	...	5·40
Lime	...	...	...	...	...	...	...	...	...	6·02
Magnesia	...	...	...	...	...	...	...	...	...	19·98
Oxide of iron	...	...	...	...	...	...	...	...	...	1·92
Alumina	...	...	...	...	...	...	...	...	...	·63
Phosphoric acid	...	...	...	...	...	...	...	...	...	42·45
Sulphuric acid...	...	...	...	...	...	...	...	...	...	·73
Chlorine	...	...	...	...	...	...	...	...	...	·30
Carbonic acid	...	...	...	...	...	...	...	...	...	·15
Silicic acid	...	...	...	...	...	...	...	...	...	·68
Sand	...	...	...	...	...	...	...	...	...	3·20
										99·00

HOPS. Stalks and tendrils. Ash of.

Potash	...	...	...	...	...	...	...	24·35	Leaves. 14·95
Soda	...	...	...	...	...	...	...	—	·39
Magnesia	...	...	...	...	...	...	...	4·10	2·39
Lime	...	...	...	...	...	...	...	38·73	49·67
Phosphoric acid	...	...	...	...	...	...	...	6·92	3·52
Sulphuric acid...	...	...	...	...	...	...	...	3·44	5·04
Silica...	...	...	...	...	...	...	...	6·07	12·14
Chloride of sodium...	...	...	...	...	...	...	...	6·47	9·49
Chloride of potassium	...	...	...	...	...	...	...	9·64	—
Peroxide of iron	...	...	...	...	...	...	...	·28	2·41
								100·00	100·00

T

HEMLOCK. Ash of.

		Seeds
Potash	12·80	21·69
Soda	21·69	9·64
Magnesia	9·64	8·39
Lime	8·39	24·96
Phosphoric acid	24·96	10·31
Sulphuric acid... ..	3·43	3·43
Silica... ..	2·62	—
Peroxide of iron	2·40	—
Chloride of sodium	16·61	—

HAZELNUT. Ash of.

	Leaves.	Peeled branches.
Alkalies and salts with alkaline bases ...	44·00	28·00
Phosphates of lime and magnesia	14·00	12·00
Oxides of iron and manganese	1·50	2·00
Carbonates of lime and magnesia	29·00	36·00
Silica... ..	11·30	22·00
	99·80	

HAZELNUT BARK. Ash of.

Alkalies and salts with alkaline bases	56·70
Phosphates of lime and magnesia	35·00
Oxides of iron and manganese	·12
Carbonates of lime and magnesia	8·00
Silica... ..	·25
	100·07

HEATH. Ash of.

Sulphate of potash	5·0
Chloride of potassium	1·2
Carbonate of potash	6·8
Silica... ..	37·5
Carbonate of lime	28·0
Phosphate of lime	13·0
Magnesia	1·0
Oxide of iron	1·4
Oxide of manganese	6·1
	100·0

IPECACUANHA.

Emetina	4.13
Soft resin	2.43
Wax	.75
Gum	25.17
Starch	9.00
Woody fibre	10.80
Bitter extractive	10.12
Sugar	2.00
Gum, starch, extracted by potash	34.80
Loss	.80

JALAP.

Hard resin	7.8
Soft resin	3.2
Slightly acrid extract	17.9
Gummy extractive... ..	14.4
Colouring matter	8.2
Uncrystalizable sugar	1.9
Gum and salts... ..	15.6
Bassorin	3.2
Vegetable albumen	3.9
Starch	6.0
Water	4.8
Malic acid and malates of potash	2.4
Chlorides of calcium and potassium	1.4
Phosphates of lime and magnesia	1.7
Carbonate of lime	3.0
Loss	4.6

JALAP. False Rose Scented.

Resin	3.23
Liquid sugar extracted by alcohol	16.47
Brown sugar, extract by water	5.92
Gum	3.88
Starch	22.69
Woody fibre	46.00
Loss	1.81

JUNIPER BERRIES.

Water	...	...	...	...	...	...	...	...	29·44
Essential oil	...	...	...	...	...	...	...	...	·91
Formic acid	...	...	...	...	...	...	...	...	1·86
Acetic acid	...	...	...	...	...	...	...	...	·94
Malic acid	...	...	...	...	...	...	...	...	·21
Oxalic acid	...	...	...	...	...	...	...	...	—
Fat	...	...	...	...	...	...	...	...	·64
Green resin	...	...	...	...	...	...	...	...	8·46
Hard brown resin	...	...	...	...	...	...	...	...	1·29
Juniperin	..	...	...	...	...	...	...	...	·37
Pectin	...	...	...	...	...	...	...	...	·73
Protein substances	...	...	...	...	...	...	...	...	4·45
Sugar	...	...	...	...	...	...	...	...	29·65
Cellulose	...	...	...	...	...	...	...	...	15·83
Ash	...	...	...	...	...	...	...	...	2·33

LIVER.

	Fatty liver.	Healthy liver.
Water	55·15	76·39
Solid constituents	44·85	23·61
Animal matter, dried at 212°	13·32	21·00
Saponifiable fat	30·20	1·60
Cholesterin	1·33	·17

LIQUOR AMNII.

	4th month.	6th month.
Water	979·45	990·29
Alcohol extract and lactate of soda	3·69	·34
Albumen	10·77	6·67
Chloride of sodium	5·95	2·40
Sulphate and phosphate of lime	·14	·30

LYMPH.

Water	...	...	...	...	...	...	...	961·0
Solid matters	...	...	...	...	...	...	...	39·0
Fibrine	...	...	...	...	...	...	...	2·5
Albumen	...	...	...	...	...	...	...	27·5
Chloride of sodium, phosphates of potash and soda, and salivary matter...	...	...	...	...	...	...	...	2·1
Extractive matters and lactate of soda	...	...	...	...	...	...	...	6·9

LUCERNE. Ash of.

Potash	14·03
Soda	6·44
Magnesia	3·64
Lime	50·57
Phosphoric acid	13·68
Sulphuric acid... ..	4·23
Silica	3·46
Peroxide of iron	·63
Chlorine	3·30
	99·98

LINSEED. Ash of.

Potash	25·85
Soda	·71
Magnesia	·22
Lime	25·98
Phosphoric acid	40·11
Sulphuric acid... ..	·99
Silica..	·92
Peroxide of iron	3·67
Chloride of sodium	1·55
	100·00

LAUREL BERRIES.

Volatile oil	·8
Laurin	1·0
Fixed oil	12·8
Stearin	7·1
Resin... ..	1·6
Uncrystalizable sugar	·4
Gummy extractive... ..	17·2
Bassorin	6·4
Starch	25·9
Lignin	18·8
Soluble albumen	traces
Acid	·1
Water	6·4
Salts	1·5
	100·0

LEES.

	French.	Spanish.
Water	11·305	10·694
Sand	4·600	4·900
Silica... ..	2·130	1·960
Ferric oxide	·394	·351
Alumina	·844	·832
Phosphoric acid	·527	·486
Lime	10·567	10·600
Magnesia	·327	·363
Potash	1·868	2·123
Soda	·100	·060
Sulphuric acid... ..	4·566	5·729
Chlorine	·040	·042
Carbonic acid	·435	·388
Tartaric acid	22·721	21·472
Combined water	5·904	5·552
Vegetable matter	33·672	34·448

LAURUS PERSEA.

	Kernel.	Rind.
Water	58·876	78·470
Fatty oil	·129	1·165
Grape sugar	1·081	19·065
Starch	8·534	
Albumen	1·301	
Tannic and gallic acids....	1·572	
Red colouring matter, succinic acid } traces and gum }	4·420	—
Cellulose	26·087	—

LAURUS PERSEA. Pulp of.

Water	80·670
Yellow fatty oil	8·500
Grape sugar	3·175
Starch	1·877
Malic acid ... { combined with calcium and }	·043
Tartaric acid ... { potassium }	·082
Albumen	·075
Glutenous substance	1·559
Dextrin, mucus, &c.	2·775
Cellulose	1·244
Ash	·982

MAN. Weighing 140lbs. or 10 stone.

		lbs.	ozs.
Dry substance.	Water	101lbs.	
	Albumen	8½lbs.	
	Globulin		
	Fibrine of flesh ...	13lbs.	
	Gelatine and fibrine of blood ...		
	Fatty substances ...	7½lbs.	
	Mineral matter ...	10lbs.	
		140lbs.	
		Carbon ...	14 9½
		Hydrogen ...	5 0
		Oxygen ...	5 12
		Nitrogen...	3 12
		Inorganic combination.	
		Phosphorus	250 grs.
		Sulphur ...	700 grs.

MAN. Mineral matter of.

		lb.	oz.	gr.
From bones.	Phosphate of lime	8	0	0
	Phosphate of magnesia	0	5	37
	Carbonate of lime	1	0	0
	Flouride of calcium	0	0	20
		9	5	57

		grains.
From other parts.	Phosphate of lime	353
	Phosphate of magnesia	218
	Phosphate of potash	2149
	Phosphate of soda	610
	Chloride of sodium	710
	Chloride of potassium	473
	Oxide of iron	106
	Carbonate of soda	104
		27

4750 = 10oz. 380gr.

MOSS. Sparganium Palustre. Ash of.

Potash	3·78
Soda	4·81
Magnesia	
Lime	9·77
Phosphoric acid	
Sulphuric acid... ..	2·83
Silica... ..	61·76
Phosphate of iron	13·80
Chloride of sodium	

MOSS. Dargavel.

	1.	2.	3.
Iron peroxide	7.00	4.10	3.32
Alumina	7.18	27.76	8.79
Lime	12.64	11.10	5.18
Magnesia	3.54	1.82	2.21
Potash	1.70	2.71	2.48
Soda	3.19	2.83	3.49
Common salt	1.84	3.32	.52
Sulphuric acid... ..	8.12	12.50	5.52
Phosphoric acid	.79	2.74	3.73
Carbonic acid	2.58	—	—
Silica... ..	16.67	9.57	18.24
Sand	34.45	22.38	45.87
Ash per cent. in dry moss	10.92	2.38	4.49
Nitrogen	1.52	1.14	1.86

MYALL WOOD.

Silicic acid	401
Carbonic acid	43.721
Sulphuric acid... ..	.488
Phosphoric acid	.103
Chlorine	.098
Potash	2.621
Soda	2.054
Lime	47.533
Magnesia	3.879
	100.898

MISTLETOE. Ash of.

		Madia seeds.
Potash	40.71	9.53
Soda	—	11.24
Magnesia	11.06	15.42
Lime	22.37	7.74
Phosphoric acid	19.74	54.99
Sulphuric acid... ..	1.62	—
Silica... ..	1.87	—
Phosphate of iron	1.46	1.08
Chloride of sodium	1.17	—

MADDER ROOT. Ash of.

Potash	20·39
Soda	7·37
Magnesia	2·60
Lime	24·00
Phosphoric acid	3·13
Sulphuric acid... ..	1·45
Silica... ..	3·63
Phosphate of iron	2·13
Chloride of sodium	10·04

MAIZE STALK. Ash of.

Potash	59·00
Phosphate of lime	9·70
Chloride of potassium	·52
Sulphate of potash	1·25
Earthy phosphates... ..	5·00
Earthy carbonates	1·00
Silica... ..	18·00
Oxide of iron and alumina	·05
Loss	3·05

97·57

NASAL MUCUS.

Water	933·7
Mucin	53·3
Alcohol extract and alkaline lactates... ..	3·0
Chlorides of potassium and sodium	5·6
Water extract, with traces of albumen and phosphates	3·5
Soda with mucus	3·9

OX GALL STONES.

Soluble portion	18·09
Fat	5·28
Phosphates, with bilirubin	1·41
Bilirubin	28·10
Residue and loss	47·12

100·00

MOSS. Dargavel.

	1.	2.
Iron peroxide	7.00	4.10
Alumina	7.18	27.76
Lime	12.64	11.10
Magnesia	3.54	1.8
Potash	1.70	2.7
Soda	3.19	2.8
Common salt	1.84	3.1
Sulphuric acid... ..	8.12	12.1
Phosphoric acid	.79	2.
Carbonic acid	2.58	—
Silica... ..	16.67	9.
Sand	34.45	2.
Ash per cent. in dry moss	10.92	
Nitrogen	1.52	

MYALL WOOD.

Silicic acid	...	...
Carbonic acid	...	...
Sulphuric acid... ..	...	...
Phosphoric acid	...	...
Chlorine	...	...
Potash	...	...
Soda	...	...
Lime	...	...
Magnesia	...	...

MISTLETOE.

Potash	...
Soda	...
Magnesia	...
Lime	...
Phosphoric acid	...
Sulphuric acid	...

OX GALL.

Mucus	2.310
Extractive matter insoluble in alcohol, with alkaline sulphates and phosphates	4.334
Chloride of sodium, lactate of soda and extractive matter soluble in alcohol	15.000
Bilin cholepyrrhin	50.000
Cholesterolin	.001
Water	928.380

OLEANDER. Ash of.

	1.	2.
Carbonate, sulphate and chloride of potassium	12.25	17.76
Carbonate of lime	57.00	71.54
Alumina	13.31	5.93
Silica... ..	5.44	—
Oxide of iron and manganese	11.00	4.86
	99.00	100.09

OAK. Ash of.

	Peeled branches.	Mould.
Alkalies and salts, with alkaline bases ...	58.58	32.50
Phosphates of lime and magnesia	28.25	10.50
Oxides of iron and manganese	1.00	14.00
Carbonates of lime and magnesia	12.25	10.00
Silica... ..	.12	32.00
	100.20	99.00

OAK. Ash of. Sept. 27th.

	Leaves.	Sap.
Alkalies and salts, with alkaline bases ...	42.50	55.30
Phosphates of lime and magnesia	18.25	24.00
Oxides of iron and manganese	1.75	2.00
Carbonates of lime and magnesia	23.00	11.00
Silica... ..	14.50	7.50
	100.00	99.80

OAK. Ash of.

	Wood.	Bark.
Alkalies and salts, with alkaline bases ...	59·25	29·75
Phosphates of lime and magnesia	4·50	4·50
Oxides of iron and manganese	2·25	1·75
Carbonates of lime and magnesia	32·00	63·25
Silica... ..	2·00	·25
	100·00	99·50

OAK. Ash of.

	Inner bark.	Leaves.
Alkalies and salts, with alkaline bases ...	29·75	72·24
Phosphates of lime and magnesia	3·75	24·00
Oxides of iron and manganese	1·00	·64
Carbonates of lime and magnesia	65·00	·12
Silica... ..	·05	3·00
	99·55	100·00

OXALIS CRENATA.

Starch	2·50
Albumen	1·50
Gum, &c	5·50
Woody fibre	4·40
Water	86·10
	100·00

ORANGE TREE. Ash of.

	Leaves.	Root.
Potash	16·51	15·43
Soda	1·68	4·52
Magnesia	5·72	6·91
Lime	56·38	49·89
Phosphoric acid	3·27	13·47
Sulphuric acid... ..	4·43	5·78
Silica... ..	4·83	1·75
Peroxide of iron	·52	1·02
Chloride of sodium... ..	6·66	1·18

ORANGE TREE. Ash of.

	Stem.	Seed.
Potash	11·69	40·28
Soda	3·07	·92
Magnesia	6·34	8·74
Lime	55·13	18·97
Phosphoric acid	17·09	23·24
Sulphuric acid... ..	4·64	5·10
Silica... ..	1·22	1·13
Peroxide of iron	·57	·80
Chloride of sodium... ..	·25	·82

OAT STRAW. Ash of.

	1.	2.
Carbonic acid	3·2	—
Sulphuric acid... ..	4·1	2·15
Phosphoric acid	3·0	1·94
Chlorine	4·7	2·48
Magnesia	2·8	4·58
Lime	8·3	7·29
Potash	24·5	12·18
Soda	4·4	13·01
Silica... ..	40·0	54·25
Oxide of iron and alumina	2·1	1·41
Carbon, water and loss	2·9	—
	100·0	99·29

OPIUM. Oriental.

Morphia	9·25
Narcotina... ..	7·50
Meconic acid	13·75
Bitter extract	22·00
Deposit	7·75
Albumen	20·00
Balsamic matter	6·25
Caoutchouc	2·00
Gum, with lime	1·25
Sulphate of potash... ..	2·00
Iron, alumina and phosphoric acid	1·50
Woody fibre	3·75
Ammonia, volatile oil and loss	3·00

OPIUM. Constantinople.

Morphia	4·50
Narcotina... ..	3·47
Codeia	·52
Narceine	·42
Meconine	·30
Meconic acid	4·38
Resin... ..	8·10
Bassorin, caoutchouc, fat and lignin	17·18
Salts and volatile oil	3·60
Lime and magnesia	·42
Alumina, oxide of iron, silica and phosphate of lime	·22
Brown acid, soluble in alcohol and water... ..	·40
Brown acid, gum and loss	56·49

OPIUM. Smyrna.

	1.	2.	3.
Morphia	10·842	4·106	9·852
Narcotina... ..	6·808	8·150	9·360
Codeia	·678	·834	·848
Narceine	6·662	7·506	7·684
Meconine	·804	·846	·314
Meconic acid	5·124	3·968	7·620
Fat	2·166	1·350	1·816
Caoutchouc	6·012	5·026	3·674
Resin... ..	3·582	2·028	4·112
Gummy extractive... ..	25·200	31·470	21·834
Gum	1·042	2·896	·698
Mucus	19·086	17·098	21·068
Water	9·846	12·226	11·422
Loss	2·148	2·496	·568

PINUS LARIX WOOD. Ash of.

Potash	15·24
Soda	7·27
Magnesia	24·50
Lime	26·97
Phosphoric acid	1·93
Sulphuric acid... ..	1·79
Silica... ..	3·60
Peroxide of iron	4·25
Red oxide of manganese	13·15
Chloride of sodium	·92

99·62

PINUS PICEA SEEDS. Ash of.

Potash	21.75
Soda	6.76
Magnesia	16.79
Lime	1.54
Phosphoric acid	39.65
Sulphuric acid... ..	—
Silica... ..	11.71
Peroxide of iron	1.31
Chloride of sodium... ..	.57
	100.08

PINE. Ash of.

	1.	2.
Carbonate of potash	3.60	7.36
Chloride of potassium	4.24	12.63
Carbonate of lime	46.34	51.19
Carbonate of magnesia... ..	6.77	—
Alumina	14.86	11.95
Silica... ..	13.49	6.87
Oxide of iron and manganese	10.52	10.00
	99.82	100.00

PINE LEAVES. Ash of. From Jura.

Alkalies and their salts... ..	40.13
Phosphates of lime and magnesia	12.27
Phosphates of iron, &c.	1.60
Carbonates of lime and magnesia	43.50
Silica... ..	2.40
	99.90

POPULUS NIGRA. Ash of.

	Leaves.	Stem.
Alkalies and salts, with alkaline bases	51.50	50.50
Phosphates of lime and magnesia	13.00	16.75
Oxides of iron and manganese	1.25	1.50
Carbonates of lime and magnesia	29.00	27.00
Silica... ..	5.00	3.30
	99.75	99.05

POPLAR BARK. Ash of.

Alkalies and salts with alkaline bases	...	...	...	29.20
Phosphates of lime and magnesia	...	...	...	5.30
Oxides of iron and manganese	...	...	...	1.50
Carbonates of lime and magnesia	...	...	...	60.00
Silica...	...	...	...	4.00
				100.00

POTATOES, Top. Ash of.

Potash	...	...	...	...	...	...	...	...	28.02
Soda	...	...	...	...	...	...	...	...	16.26
Magnesia	...	...	...	...	...	...	...	...	7.09
Lime	...	...	...	...	...	...	...	...	16.96
Phosphoric acid	...	...	...	...	...	...	...	...	7.62
Sulphuric acid...	...	...	...	...	...	...	...	...	6.88
Silica	...	...	...	...	...	...	...	...	3.85
Peroxide of iron	...	...	...	...	...	...	...	...	1.05
Chloride of sodium	...	...	...	...	...	...	...	...	
Chlorine	...	...	...	...	...	...	...	...	12.33

PINE APPLE TOP. Ash of.

Potash	...	...	...	...	...	...	...	...	19.66
Soda	...	...	...	...	...	...	...	...	
Magnesia	...	...	...	...	...	...	...	...	6.81
Lime	...	...	...	...	...	...	...	...	21.28
Phosphoric acid	...	...	...	...	...	...	...	...	
Sulphuric acid...	...	...	...	...	...	...	...	...	5.26
Silica...	...	...	...	...	...	...	...	...	6.09
Phosphate of iron	...	...	...	...	...	...	...	...	7.35
Chloride of sodium	...	...	...	...	...	...	...	...	2.42
Chloride of potassium	...	...	...	...	...	...	...	...	31.11

PEAPODS. Ash of.

Potash	22.31
Soda	17.99
Magnesia	9.54
Lime	31.08
Phosphoric acid	10.59
Sulphuric acid... ..	6.96
Silica... ..	.29
Phosphate of iron	1.16
Chloride of sodium... ..	trace

POPPY. Ash of.

Potash	6.85
Soda	33.11
Lime	5.06
Phosphoric acid	23.37
Sulphuric acid... ..	2.26
Silica... ..	1.41
Peroxide of iron	1.21
Chloride of sodium	
Chloride of potassium	3.40

PEAT. Ash of.

	Light.	Surface.	Dense.	Lower layer.
Potash	.362	1.323	.198	.247
Soda	1.427	1.902	.590	.496
Lime	26.113	36.496	25.860	24.944
Magnesia	3.392	7.634	1.207	1.285
Alumina	4.180	5.411	.371	.360
Sesquioxide of iron	11.591	15.608	18.746	19.405
Phosphoric acid	1.461	2.571	.874	.242
Sulphuric acid... ..	12.403	14.092	23.630	10.742
Hydrochloric acid	1.568	1.482	.622	.335
Silica in compounds, } decomposable by acids }	.980	3.595	.896	1.082
Sand and silicates, in- } decomposable by acids }	22.519	2.168	14.430	26.789
Carbonic acid	13.695	7.761	12.240	13.890
	99.691	100.043	99.664	99.817

PEAT. Ash of.

	Compact and good.	Extremely hard.	Light surface.	Dense.
Potash	641	347	668	271
Soda	1875	679	1709	1491
Lime	22702	45581	31553	13667
Magnesia	6809	1256	9439	16994
Alumina	1109	129	1707	259
Sesquioxide of iron	29854	15974	6012	26644
Phosphoric acid	2019	188	1286	1339
Sulphuric acid... ..	16381	44371	25602	22691
Hydrochloric acid	1591	337	698	1180
Silica in compounds, de- composable by acids }	737	1043	5159	2719
Sand and silicates, inde- composable by acids }	14505	2653	6282	11673
Carbonic acid	1470	16120	9864	—
	99693	*128678	99979	98928

* Error in analysis.

PIMENTO BERRIES.

	Husks.	Kernels.
Volatile oil	100	50
Green oil	84	25
Solid fat oil	9	12
Astringent extract... ..	114	398
Gummy extract	30	72
Colouring matter	40	—
Resinous matter	12	—
Uncrystalizable sugar	30	80
Malic or gallic acid	6	16
Lignin	500	—
Saline ashes	28	19
Water	35	30
Loss	16	18
Red matter insoluble in water	—	88
Pellicular matter	—	160
Brown flocculi... ..	—	32
	1004	1000

U

PUFF BALLS. Ash of.

Phosphoric acid	...	...	...	...	...	...	...	46.19
Potash	..	...	...	...	...	...	...	35.48
Soda	...	...	...	...	...	...	...	6.95
Lime	...	...	...	...	...	...	...	2.47
Iron oxide	...	...	...	...	...	...	...	1.08
Silicic acid	...	...	...	...	...	...	...	.66
Undetermined...	...	...	...	...	...	...	...	7.17

PUFF BALLS. Giant.

Water	...	...	...	...	...	...	...	90.87
Albuminoids	...	...	...	...	...	...	...	5.48
Oil	...	...	...	...	...	...	...	.90
Cellulose, &c.	...	...	...	...	...	...	...	2.10
Ash	...	...	...	...	...	...	...	.63

PULMONARY MUCUS OF A HEALTHY MAN.

Water	...	...	...	...	...	...	...	955.520
Solid constituents	...	...	...	...	...	...	...	44.480
Mucus and albumen	...	...	...	...	...	...	...	23.754
Water extract...	...	...	...	...	...	...	...	8.006
Alcohol	...	...	...	...	...	...	...	1.810
Fat	...	...	...	...	...	...	...	2.887
Chloride of sodium	...	...	...	...	...	...	...	5.825
Sulphate of soda	...	...	...	...	...	...	...	.400
Carbonate of soda	...	...	...	...	...	...	...	.198
Phosphate of soda	...	...	...	...	...	...	...	.080
Phosphate of potash, with traces of oxide of iron...	...	...	...	...	...	...	...	.974
Carbonate of potash	...	...	...	...	...	...	...	.291
Silica and sulphate of potash	...	...	...	...	...	...	...	.255

PANCREATIC FLUID. In 1000 parts.

	Dog.	Sheep.
Water	917.2	963.5
Extractive matter and salts soluble in alcohol	36.8	15.5
Caseous matter and soda salts soluble in water	15.3	2.8
Albumen and salts...	35.5	22.4

PUS. From a Mammary Abscess.

Water	861.0
Solid constituents	139.0
Fat soluble only in hot alcohol	16.0
Fat and extractive matter soluble in cold alcohol ...	43.0
Albumen, pyin and pus corpustules	74.0
Loss	6.0

RICINUS COMMUNIS. Ash of leaves.

Lime	33.40
Magnesia	6.20
Potash	27.15
Soda	2.12
Oxide of iron	.70
Phosphoric acid	6.68
Sulphuric acid	2.90
Chlorine	1.63
Carbonic acid	16.20
Silica	2.41
Loss	.61
	100.00

RESIN. Elemi.

Volatile oil	12.5
Resins soluble in both hot and cold alcohol	60.0
Elemi	24.0
Bitter extractive	2.0
Impurities	1.5
	100.0

SHELLAC.

	Stick.	Seed.	Shell.
Resin	68.0	88.5	90.9
Colouring matter	16.0	2.5	.5
Wax	6.0	4.5	4.0
Gluten	5.5	2.0	2.8
Foreign bodies	6.5	—	—
Loss	4.0	2.5	1.8
	100.0	100.0	100.0

RATTANY ROOT.

	1.	2.
Tannin	38·3	42·6
Gallic acid	—	·3
Sweet matter	6·7	—
Nitrogenous matter	2·5	—
Mucilage	8·3	—
Lignin	43·3	—
Krameric acid... ..	—	·4
Gum, &c.	—	56·0
Loss	·9	—
	100·0	100·0

RYE GRAIN. Ash of.

Potash	32·76
Soda	4·45
Magnesia	10·13
Lime	2·92
Phosphoric acid	47·29
Sulphuric acid... ..	1·46
Silica... ..	·17
Peroxide of iron	·82
	100·00

SALIVA. Human.

Water	991·225
Solid matters	8·775
Fat containing cholesterin	·525
Ptyalin with extractive matter	4·375
Extractive matter and salts... ..	2·450
Albumen, mucus and salts	1·400

SWEAT.

	1.	2.
Water	995·000	987·500
Epidermis and salts of lime .. •	·100	·250
Water extracts and sulphates	1·050	2·625
Spirit extracts, chlorides of potassium } and sodium	2·400	6·000
Alcohol extract, acetates, lactates, and } free lactic acid	1·450	3·625

SOAP. Naples.

Fatty acids	...	...	...	...	...	...	...	57·14
Potass, combined with fatty acids	...	...	...	...	...	...	...	10·39
Sulphate of potass	...	...	...	...	...	...	...	4·22
Silica, &c.	...	...	...	...	...	...	...	·46
Water	...	...	...	...	...	...	...	27·68
Loss	...	...	...	...	...	...	...	·11

SOAPS.

	White.	Brown.	Marine.	Poppy Oil.	French White.
Fatty acids	... 75·0	... 70·0	... 22·0	... 76·0	... 50·2
Soda	... 9·0	... 6·5	... 4·5	... 7·0	... 4·6
Water	... 16·0	... 23·5	... 73·5	... 17·0	... 45·2
Potass	...	...	...	...	...

	Marseilles.	Soft.	Belgian Green.	Scotch soft Rape oil.	Scotch soft Olive.
Fatty acids	... 60·0	... 44·0	... 36·0	... 51·60	... 48·0
Soda	... 6·0	...	...	...	...
Water	... 34·0	... 46·5	... 57·0	... 38·33	... 42·0
Potass	...	... 9·5	... 7·0	... 10·00	... 10·0

SEEDS.

	Niger.	Dotter.
Water	... 7·02	... 5·75
Oil	... 43·22	... 28·18
Albuminous compounds	... 19·37	... 28·31
Gum, sugar, &c.	... 12·37	... 12·16
Fibre	... 14·33	... 9·05
Ash	... 3·48	...

STRAMONIUM DATURA SEEDS. Ash of.

Potash	...	...	...	...	...	...	20·22
Soda	...	...	...	...	...	...	14·24
Lime	...	...	...	...	...	...	4·11
Phosphoric acid	...	...	...	...	...	...	34·72
Sulphuric acid	...	...	...	...	...	...	...
Silica	...	...	...	...	...	...	5·21
Peroxide of iron	...	...	...	...	...	...	3·94
Chloride of potassium	...	...	...	...	...	...	...
Magnesia	...	...	...	...	...	...	17·56

SAINFOIN. Ash of.

Silica...	2.79
Sulphate of potash...	3.87
Chloride of sodium...	2.37
Carbonate of potash...	9.93
Carbonate of soda...	17.16
Carbonate of lime...	32.55
Magnesia...	9.11
Phosphate of iron...	.64
Phosphate of lime...	15.37
Phosphate of magnesia...	3.98
Carbonaceous matter...	.36

 98.13
SABINE WOOD. Ash of.

Potash...	.83
Soda...	3.29
Magnesia...	2.97
Lime...	77.32
Phosphoric acid...	3.49
Sulphuric acid...	2.42
Silica...	.39
Peroxide of iron...	1.36
Chloride of sodium...	
Chloride of potassium...	6.63

 98.70
SUNFLOWER. Ash of. Before blossoming.

Alkalies and their salts...	79.67
Phosphates of lime and magnesia...	6.70
Phosphates of iron, &c.	.13
Carbonates of lime and magnesia...	11.56
Silica...	1.50

 99.56
SHARE GRASS. Ash of.

Sulphate of potash...	12.0
Chloride of potassium...	11.4
Silica...	50.8
Carbonate of lime...	6.2
Sulphate of lime...	14.4
Phosphate of lime...	2.2
Magnesia...	3.0

 100.0

SPONGE. Ash of.

Insoluble silica	...	...	...	...	...	...	...	34.565
Soluble silica	...	...	...	...	...	...	...	2.892
Lime	...	...	...	...	...	...	...	20.881
Magnesia	...	...	...	...	...	...	...	.705
Oxide of iron	...	...	...	...	...	...	...	traces
Potass	...	...	...	...	...	...	...	.163
Soda	...	...	...	...	...	...	...	9.319
Phosphoric acid	...	...	...	...	...	...	...	2.024
Carbonic acid	...	...	...	...	...	...	...	8.470
Sulphuric acid	...	...	...	...	...	...	...	2.979
Chlorine	...	...	...	...	...	...	...	18.002
								100.000

SILVER SOAP.

Water	...	...	...	...	...	...	...	2.40
Fat	...	...	...	...	...	...	...	33.43
Phosphates of iron and alumina	...	...	...	...	...	...	...	.75
Carbonate of lime	...	...	...	...	...	...	...	62.86
Soda	...	...	...	...	...	...	...	.75
Magnesia	...	...	...	...	...	...	...	trace
Insoluble matter	...	...	...	...	...	...	...	
								100.00

SCAMMONY. Pure.

	Old.	Old.	Moist.
Resin...	81.8	83.0	77.0
Gum	6.0	8.0	6.0
Starch	1.0	—	—
Lignin and sand	3.5	3.2	5.0
Water	7.7	7.2	12.6
100.0		100.0	100.0

TOBACCO. Fresh leaves.

Nicotina	060
Concrete volatile oil	010
Bitter extractive	2·870
Gum, with malate of lime	1·740
Chlorophylle	267
Albumen and gluten	1·308
Malic acid	510
Lignin, and a trace of starch	4·969
Salts of potash, lime and ammonia	734
Silica... ..	088
Water	88·280
	100·836

TOBACCO. Ash of.

	1.	2.	3.
Potash	27·88	19·55	29·08
Soda	—	27	2·26
Magnesia	7·31	11·07	7·22
Lime	33·84	48·68	30·35
Phosphoric acid	1·99	3·66	2·74
Sulphuric acid... ..	3·75	3·29	3·75
Silica... ..	—	—	—
Peroxide of iron	4·40	2·99	6·04
Chloride of sodium... ..	9·34	3·54	·91
Chloride of potassium	4·90	—	—

TOBACCO. Ash of. Virginian.

Silica... ..	1·717
Chlorine	2·812
Sulphuric acid	5·490
Phosphoric acid	3·296
Potash	35·576
Soda	2·784
Lime	37·600
Magnesia	10·725

TILLIA EUROPEA. Ash of.

	Bark.	Wood.
Potash	16·14	35·80
Soda	4·53	5·23
Magnesia	8·03	4·15
Lime	60·81	29·93
Phosphoric acid	4·02	4·85
Sulphuric acid... ..	·75	5·30
Silica... ..	2·27	5·26
Peroxide of iron	1·24	7·97
Chloride of sodium	2·21	1·49
	100·00	99·98

THISTLE. Ash of.

Potash and chloride of potassium	27·40
Chloride of sodium	·90
Lime	41·44
Magnesia	4·40
Oxide of iron and alumina	2·01
Phosphoric acid	5·36
Sulphuric acid... ..	2·92
Soluble silica and sand	3·50
Carbonic acid and loss	12·07
	100·00

TEETH.

	Female, 25 years.		Adult Male.	
	Enamel.	Osseous.	Enamel.	Osseous.
Phosphate of lime and } fluoride of calcium }	81·63	67·54	89·82	66·72
Carbonate of lime	8·88	7·97	4·37	3·36
Phosphate of magnesia	2·55	2·49	1·34	1·08
Salts	·97	1·00	·88	·83
Cartilage	5·97	20·42	3·39	27·61
Fat	trace	·58	·20	·40
	Child	Child	Male	
	1 day old.	6 years.	81 years of age.	
Organic matter	35·00	28·57	33·00	
Phosphate of lime	51·00	60·01	66·00	
Carbonate of lime	14·00	11·42	1·00	

VETCH. Ash of.

Potash	30.57
Soda	9.56
Magnesia	8.49
Lime	4.79
Phosphoric acid	38.05
Sulphuric acid... ..	4.10
Silica... ..	2.01
Peroxide of iron	.75
Chloride of sodium... ..	2.00

100.33
VINE. Ash of.

	Styria.	Misnia.
Potash	34.13	37.48
Soda	7.59	1.33
Magnesia	6.55	1.05
Lime	30.28	43.88
Phosphoric acid	16.35	9.20
Sulphuric acid... ..	2.66	3.61
Silica... ..	1.45	.72
Peroxide of iron	.16	1.08
Chloride of sodium	.83	1.61

100.00 99.86
WALNUT SHELL. Ash of.

Potash	23.10
Soda	2.74
Magnesia	4.13
Lime	30.57
Phosphoric acid	—
Sulphuric acid... ..	14.96
Silica... ..	14.43
Phosphate of iron	10.07
Chloride of sodium	—
Chloride of potassium	—

WHEAT EMBRYOS.

Water	12.53
Albuminoids	35.70
Oil	4.18
Cellulose, &c.	41.83
Ash	5.76

100.00

YEAST. From Beer. Ash of.

							Superior.	Inferior.
Sulphuric acid...	...	...	...	...	...	...	—	—
Phosphoric acid	...	...	...	...	...	...	53·730	34·13
Potash	...	...	...	...	...	...	39·500	40·80
Soda ...	...	...	...	...	...	...	—	·50
Lime ...	...	...	...	...	...	...	1·020	1·15
Magnesia ...	...	...	...	...	...	...	6·150	7·32
Ferric oxide	...	...	...	...	...	...	—	—
Alumina ...	...	...	...	...	...	...	—	—
Silica...	...	...	...	...	...	...	—	16·60
							100·400	100·50
Per centage of ash in dry yeast...	...	...	...	...	...	...	7·65	

YEAST. Ash of.

							1.	2.
Sulphuric acid...	...	...	...	...	...	...	6·376	5·046
Phosphoric acid	...	...	...	...	...	...	63·866	53·443
Potash	...	...	...	...	...	...	28·791	31·521
Soda ...	...	...	...	...	...	...	1·929	·771
Lime ...	...	...	...	...	...	...	2·491	2·395
Magnesia ...	...	...	...	...	...	...	6·546	3·772
Ferric oxide	...	...	...	...	...	...	7·342	2·734
Alumina ...	...	...	...	...	...	...	—	traces
Silica...	...	...	...	...	...	...	traces	traces
							100·000	99·682

APPENDIX.

TABLE FOR CALCULATING DIETS.

	Water.	Albuminates.	Fats.	Carbo- Hydrates.	Salts.
Lean raw meat, } bone free	75	15	8.4	—	1.6
Fattened meats...	63	14	19	—	3.7
Roast meats } Boiled "	54	27.6	15.45	—	2.95
Bread	40	8	1.5	49.2	1.3
Flour	15	11	2	70.3	1.7
Biscuit	8	15.6	1.3	73.4	1.7
Rice	10	5	.8	83.2	.5
Oatmeal	12	16	6.8	63	2
Maize	13.5	10	6.7	64.5	1.4
Peas, dry	15	22	2	53	2.4
Potatoes	74	1.5	.1	23.4	1
Carrots, all cellu- } lose excluded	85	.6	.25	8.4	.7
Cabbage	91	.2	.5	5.8	.7
Butter	8.8	2.7	85	—	3.5
Eggs, less 10 per } cent. for shell	73.5	13.5	11.6	—	1.0
Cheese	36.8	33.5	24.3	—	5.4
Milk, sp. gr. 1030	86.7	4	3.7	5	.6
" " 1026	90	3	2.5	3.9	.5
Sugar	3	—	—	96.5	.5

COCOA.

	Caracas.	Trinidad.	Surinam.
Husk	13·80	15·50	15·50
Fat	48·40	49·40	54·40
Nitrogen	1·76	1·76	1·76
Albuminoid substances	11·14	11·14	11·14
Ash	3·95	2·80	2·35
Starch, gum, &c.	32·19	32·82	28·35
Moisture	4·32	3·84	3·76
	Grenada.	Bahia.	Cuba.
Husk	14·60	9·60	12·00
Fat	45·60	50·30	45·30
Nitrogen	1·96	1·17	1·37
Albuminoid substances	12·40	7·40	8·67
Ash	2·40	2·60	2·90
Starch, gum, &c.	35·70	35·30	39·41
Moisture	3·90	4·40	3·72

COCKCHAFERS.

Protein compounds	64·09
Fat	7·29
Fibre	16·06
Non-nitrogenous extractive matter	4·73
Ash	7·83

100·00

FLESH.

	Mutton.		Dried	Green
	Lean.	Fat.	Bacon.	Bacon.
Nitrogenous matters ...	18·3	12·4	8·8	7·1
Fat	4·9	31·1	73·3	66·8
Salts	4·8	3·5	2·9	2·1
Water	72·0	53·0	15·0	24·0
	100·0	100·0	100·0	100·0
	Tripe.	Sheep	Calves'	Fote
		kidney.	liver.	Gras.
Nitrogenous matter ...	13·2	17·250	20·10	13·75
Fat	16·4	2·125	5·58	54·57
Salts	2·4	1·100	1·54	2·58
Water	68·0	78·200	72·33	22·70
Non-nitrogenous organic matter and loss ...	—	1·325	—	—
Carbo-hydrates, amyloid matter	—	—	·45	6·40
	100·0	100·000	100·00	100·00

FISH.

	White fish.	Salmon.	Eels.	Oysters.
Nitrogenous matters ...	18.1	16.1	9.9	14.010
Fat	2.9	5.5	13.8	1.515
Mineral matters	1.0	1.4	1.3	2.695
Non-nitrogenous matters	—	—	—	1.395
Water	78.0	77.0	75.0	80.385
	100.0	100.0	100.0	100.000

FISH.

	Mussels.	Spawn.	Flesh.	Lobster. Soft substance internal.
Nitrogenous matters	11.72	21.892	19.170	12.140
Fat	2.42	8.234	1.170	1.444
Salts	2.73	1.998	1.823	1.749
Non-nitrogenous matters	7.39	4.893	1.219	.354
Water	75.74	62.983	76.618	84.313
	100.00	100.000	100.000	100.000

FUNGI (Edible).

	Mushrooms.	Morelle.	White Truffles.	Black Truffles.
Nitrogenous matter and sulphur	4.680	4.40	9.958	8.775
Fatty matters	.396	.56	.442	.560
Cellulose, dextrin, man- nite and other non- nitrogenous substances	3.456	3.68	15.158	16.585
Mineral matters	.458	1.36	2.102	2.070
Water	91.010	90.00	72.340	72.000
	100.000	100.00	100.000	100.980

FRUITS.

		Bilberry.	Strawberry.		Black Mulberry.
			Wild.	Red Pine.	
Soluble.	Sugar	5·780	4·550	7·575	9·192
	Acid	1·341	1·332	1·133	1·860
	Albuminous matters ...	·794	·567	·359	·394
	Pectous matters	·555	·049	·119	2·031
	Ash	·858	·603	·480	·566
Insoluble.	Seeds and skins	12·864	5·580	1·960	·905
	Pectose	·256	·300	·900	·345
	Ash (included above) ...	(·550)	(·345)	(·154)	(·089)
	Water	77·552	87·019	87·474	84·707
		100·000	100·000	100·000	100·000

		Raspberry.			Black-berry.
		Wild.	Red.	White.	
Soluble.	Sugar	3·597	4·708	3·703	9·192
	Acids	1·980	1·356	1·115	1·860
	Albuminous matters ...	·546	·544	·665	·394
	Pectous matters	1·107	1·746	1·397	2·031
	Ash	·270	·481	·380	·566
Insoluble.	Seeds and skins	8·460	4·106	4·520	·905
	Pectose	·180	·502	·040	·345
	Ash (included above) ...	(·134)	(·296)	(·081)	(·089)
	Water	83·860	86·557	88·180	84·707
		100·000	100·000	100·000	100·000

		Gooseberries.		Currants.	
		Large Red.	Yellow.	Red.	White.
Soluble.	Sugar	8·063	6·383	6·44	7·692
	Acid	1·358	1·078	1·84	2·258
	Albuminous matters ...	·441	·578	·49	·300
	Pectous substances ...	·969	2·112	·19	
	Ash	·317	·200	·57	·560
Insoluble.	Seed and skins	2·993	3·822	4·48	4·144
	Pectose	·294	·308	·72	·240
	Ash (included above) ...	(·146)	(·100)	(·23)	—
	Water	85·565	85·519	85·27	84·806
		100·000	100·000	100·00	100·000

FRUITS.

		Apples.		Apricots.		Peaches.	
		Soluble.		Insoluble.		Soluble.	
Soluble.	Sugar	7.58	1.140	1.140	1.580	1.580	1.580
	Free acid	1.04	.898	.898	.612	.612	.612
	Albuminous substances...	.22	.832	.832	.463	.463	.463
	Pectous substances ...	2.72	5.929	5.929	6.313	6.313	6.313
	Ash	.44	.820	.820	.422	.422	.422
	Seeds... ..	.38	4.300	4.300	4.629	4.629	4.629
	Skins, &c.	1.42	.967	.967	.991	.991	.991
	Pectose	1.16	.148	.148	—	—	—
	Ash (included above) ...	(.03)	(.071)	(.071)	(.042)	(.042)	(.042)
	Water	85.04	84.966	84.966	84.990	84.990	84.990
		100.00	100.000	100.000	100.000	100.000	100.000

		Plums.		Cherries.	
		Mirabelle.	Mussel.	Red heart.	Black.
Soluble.	Sugar	3.584	5.793	13.110	10.700
	Free acid	.582	.952	.351	.560
	Albuminous substances }	.197	.785	.903	1.010
	Pectous sub- stances ... }	5.772	3.646	2.286	.670
	Ash	.570	.734	.600	.600
	Seeds... ..	5.780	3.540	5.480	5.730
	Skins, &c.	.179	1.990	.450	.366
	Pectose	1.080	.630	1.450	.664
	Ash (included above) ... }	(.082)	(.094)	(.090)	(.078)
	Water	82.256	81.930	75.370	79.700
		100.000	100.000	100.000	100.000

		Sweet Potato.		Bananas	
		Pulp.		Pulp.	
Nitrogenous matters		1.50	4.820	4.820	4.820
	Starch	16.05	—	—	—
	Cellulose	.45	.200	.200	.200
	Sugar and gum	10.20	19.657	19.657	19.657
	Organic matter and }	3.70	fatty matter	.632	.632
	Mineral matter ... }	—	salts	.791	.791
	Water	67.50	73.900	73.900	73.900
		99.70	100.000	100.000	100.000

GROUND PEA (*Arachis Hypogæa*, Virginia).

	Root.	Stem.	Leaves.	Husk.	Seed.
Potash ...	23·043	25·902	15·880	37·395	37·134
Soda ...	18·816	3·063	2·897	3·763	3·342
Lime ...	28·180	43·440	53·712	20·145	3·749
Magnesia ...	8·706	13·296	4·844	13·506	14·262
Phosphoric acid	3·684	1·590	4·679	5·062	29·102
Sulphuric acid	13·015	10·613	15·235	17·749	11·742
Chlorine ...	1·162	1·501	2·533	·486	·346
Silica... ..	3·705	·933	·791	2·003	·401
	100·261	100·338	100·571	100·109	100·078

SHERRIES. Pure Wine Association.

	1.	2.	3.
Specific gravity	988·80	992·10	985·90
Absolute alcohol	12·06	14·90	15·66
Proof spirit	26·12	32·38	33·97
Grape sugar	·24	3·26	1·68
Tartaric acid	·30	·33	·30
Acetic acid	·06	·10	·03
Total solids	1·94	3·47	2·44
Ash	·27	·24	·27

PORTS. Pure Wine Association.

	1.	2.	3.
Specific gravity	988·80	996·30	991·30
Absolute alcohol	13·30	15·16	11·23
Proof spirit	28·79	32·91	24·36
Grape sugar	·58	1·30	·35
Tartaric acid	·46	·53	·60
Acetic acid	·03	·03	·06
Total solids	2·42	4·55	2·06
Ash	·18	·29	·23

SUPERPHOSPHATES.

		From Bones.		Bone Ash.	
Water	...	7.74	7.79	5.33	10.40
Organic matter and ammoniacal salts	...	17.83	21.69	6.94	4.92
*Biphosphate of calcium		13.18	9.87	21.35	23.09
Insoluble phosphates	...	10.31	21.17	5.92	6.08
Sulphate of calcium	...	46.00	35.30	56.16	47.78
Alkaline salts	...	1.46	.94	traces	
Sand	...	3.48	3.24	3.30	4.30
		100.00	100.00	100.00	100.00
Nitrogen	...	2.11	3.01	.23	.31
*Equal to soluble phosphates	...	20.57	15.39	33.33	36.02

		From Coprolites.		Mixtures containing Ammonia Salts.	
Water	...	5.90	10.17	7.07	18.00
Organic matter and ammoniacal salts	...	5.10	4.13	9.87	13.00
*Biphosphate of calcium		12.24	13.75	17.63	12.00
Insoluble phosphates	...	16.90	.17	12.60	8.00
Sulphate of calcium	...	52.39	62.62	49.77	46.00
Alkaline salts	...	2.47	.96	.06	1.00
Sand	...	6.00	8.20	3.00	2.00
		100.00	100.00	100.00	100.00
Nitrogen	...	.11	.57	1.28	1.00
*Equal to soluble phosphates	...	19.10	21.43	27.50	19.00

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